THE RAILWAY GAZETTE AND Railway News
A JOURNAL OF RAILWAY MANAGEMENT, ENGINEERING, OPERATION AND RAILWAY NEWS.
with which are incorporated
The RAILWAY RECORD, RAILWAY OFFICIAL GAZETTE, RAILWAYS ILLUSTRATED, TRANSPORT, HERAPATH'S RAILWAY JOURNAL and The RAILWAY TIMES (established 1837)

PUBLISHED EVERY FRIDAY
AT
33, TOTHILL STREET, WESTMINSTER, LONDON, S.W.1

Telegraphic Address: "TRAZETTE PARL., LONDON"
Telephone No.: VICTORIA 8836 (6 lines)

Annual subscription payable in advance and postage free:
British Isles and Abroad..... £2 5s. 0d.
Single Copies..... One Shilling

Registered at the General Post Office, London, as a Newspaper

VOL. 60. NO. 14. FRIDAY, APRIL 6, 1934

CONTENTS

	PAGE
Editorials	563
Letters to the Editor	568
Publications Received	570
The Scrap Heap	571
Overseas Railway Affairs	572
Duralumin Connecting Rods	574
Improving Railway Lighting	575
Demonstration of a New Fire-Proofing Composition	576
Repairs to Whitehaven Tunnel, L.M.S.R.	578
New Train Indicator at Paddington, G.W.R.	579
Keeping Abreast of the Times in the Goods Department	582
Railway News Section	587
Personal	587
Contracts and Tenders	598
Legal and Official Notices	599
Railway Share Market	600

ELECTRIC RAILWAY TRACTION

A Supplement illustrating and describing developments in Electric Railway Traction is presented with each copy of this week's issue.

The Easter Holiday

THE cheap travel facilities that have been introduced during the past year seem to have exercised an unmistakeable influence on the Easter holiday traffic. This was the first Easter at which the restrictive week-end ticket has been replaced by the penny-a-mile summer ticket, giving the holder complete latitude over the period of a month. The exceptionally heavy long-distance traffic handled this year was no doubt largely a result of the innovation. It is primarily to this factor that the L.M.S.R. attributes the increase of approximately 8 per cent. in its holiday receipts compared with those of last year. The Easter rush began on the Thursday and was rather more intense than on the corresponding day of 1933. Night travel was popularised by the three-farthings-a-mile return tickets. The L.N.E.R. found it necessary to relieve the pressure on King's Cross by despatching a certain number of night expresses for the North-Eastern area from Marylebone. The same company made free use of its recently constructed and highly popular buffet-car tourist train sets to provide relief portions for other services. Bookings for the Continent from Victoria were heavier than for many years. As a contrast, short distance traffic on Bank Holiday was comparatively light. This was partly the result of uninviting weather, though it seems evident that the possibility of cheap and unfettered rail travel is changing the nation's holiday habits and tempting it further afield.

The 24-Hour Clock in Practice

We commented last week on the decision of the British Broadcasting Corporation to adopt the 24-hour system for indicating the times of its programmes, and have previously referred to the readiness of the railways to revise their time-tables in accordance with the same principle. The inevitable criticisms proceed from those whose mathematics are weak or who regard with alarm the prospect of being obliged to enquire at which platform they will find the "fifteen-fifteen," the "twenty-three fifty-nine" (an unfair test for the homing reveller), and so on. For their reassurance it may be pointed out that on the Continent, where the 24-hour time-table is universal, the 12-hour system is still used in conversation. The traveller in Germany who refers to the 3.45 p.m. as the *fünfzehn Uhr fünf und vierzig* advertises the fact that he is a foreigner. But this is no stigma upon the practical value of the 24-hour clock. The spoken word can be extemporaneously elaborated if there is any question as to its being understood. Printed figures are mute and irrevocable. They cannot remind us that we have overlooked the "p.m." at the top of the column.

* * * *

The Week's Traffics

As the latest traffic returns are for Good Friday week and compare with an ordinary week in 1933 there is naturally a big increase in the passenger train receipts of the four group companies. Passenger train earnings for the past week amounted on the L.M.S.R. to £628,000, an increase of £13,000 in comparison with Good Friday week, 1933; on the L.N.E.R. to £374,000, an increase of £13,000; on the Great Western to £253,000, an increase of £1,000; and on the Southern to £376,000, the same as for Good Friday week, 1933. Total traffic receipts for the past week show the following increases in comparison with Good Friday week, 1933:—L.M.S.R. £74,000 or 6·30 per cent.; L.N.E.R. £96,000 or 12·10 per cent.; Great Western £29,000 or 5·88 per cent.; and Southern £16,000, or 3·53 per cent. Merchandise and coal are up.

	13th Week				Inc. or dec.	
	Pass. &c.	Goods, &c.	Coal, &c.	Total.	Year to date	
	£	£	£	£	£	%
L.M.S.R. ..	+221,000	− 40,000	− 31,000	+212,000	+1,014,000	+ 7·66
L.N.E.R. ..	+116,000	− 7,000	+ 16,000	+125,000	+ 951,000	+ 9·83
G.W.R. ..	+ 85,000	− 10,000	+ 5,000	+ 80,000	+ 358,000	+ 6·56
S.R... ..	+129,000	− 14,500	+ 1,500	+116,000	+ 249,000	+ 5·99

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No Stabilisation in a Dynamic World

There is a school of political economists who seek to solve the troubles of the industrial world by currency stabilisation. The President of the International Chamber of Commerce, which subscribes to this school, says that "there cannot be sound international distribution of goods unless the price can be definitely fixed." Now what is price if not cost of production, which includes so-called profit? And how is cost of production to be fixed in a world where every engineer is striving to reduce it? The railways, for example, are always endeavouring to reduce their costs so as to be in a position to reduce their charges, and every step taken to diminish the amount of energy consumed in producing transport is a step towards higher efficiency, which is surely an important objective. The real cost of production (as well as its true objective) is consumption. The cost of the mustard tree is the destruction of the seed from which it sprang. The real cost of a railway journey is the energy absorbed in moving the train. Those who seek stabilisation implicitly demand the prohibition of the development of applied science. More in consonance with modern conditions is the suggestion put forward in a letter to *The Times* last Wednesday, signed by a number of responsible business men, that a monetary system must

be established " under which the issue and recall of currency and credit will be regulated on a rational, national, and scientific basis, so that the correct number of money-tokens shall be available to consumers to enable them to enjoy the output of production.

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Overseas Railway Traffics

The latest returns of Argentine railway companies show the aggregate earnings for three-quarters of the financial year, and indicate that during the past three weeks three of the principal companies have improved their traffic position. In that period the Buenos Ayres & Pacific has reduced its traffic decrease by £28,000, the Buenos Ayres Western by £38,000, and the Central Argentine by £28,000. The Buenos Ayres Great Southern has, on the other hand, reduced its aggregate increase by £7,000 during the same period. Traffics of the Entre Rios Railways for the 39 weeks have advanced by £11,800. Canadian Pacific traffics continue to improve, having increased in the past three weeks to the extent of £171,000. Its net earnings for the months of January and February, 1934, show an advance of £257,600 over those for the first two months of 1933.

Railway.	No. of Week.	Weekly Traffics.	Increase or Decrease.	Aggregate Traffic.	Increase or Decrease.
		£	£	£	£
Buenos Ayres & Pacific	39th	140,000	+ 8,000	4,134,000	— 94,000
Buenos Ayres Great Southern ..	39th	219,000	— 6,000	7,889,000	+ 7,000
Buenos Ayres Western	39th	90,000	+ 15,000	2,548,000	— 72,000
Central Argentine	39th	165,000	+ 2,000	6,436,000	— 680,000
Canadian Pacific	13th	653,800	+ 93,400	5,497,400	+ 782,800
Bombay, Baroda & Central India	50th	175,800	+ 4,275	7,650,150	+ 285,750

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Camping Coaches

The day of the tent, as far as the camping public is concerned, is passing. As a residence for soldiers and boy scouts it has the blessing of tradition and will no doubt persist. In the hands of these people it is mysteriously tractable. But the holiday camper secretly pines for an open-air abode that requires neither to be pitched nor struck, nor carted on the back from place to place. And now the ideal holiday home has appeared in the form of a railway carriage. Under its sheltering roof one can pursue the life that is simple, cheap and healthy with confidence in the impermeability and permanence of one's habitation. Camping coaches, scattered up and down the map in sundry bosky sidings, await a record number of summer visitors this year. Credit must be given to the L.N.E.R. for inaugurating such a scheme in 1933. A camping coach in use at Pateley Bridge, Yorkshire, was illustrated on page 212 of THE RAILWAY GAZETTE of August 11, 1933. The G.W.R. last week announced a similar enterprise, which was outlined in our issue of March 30. The railways can claim to have made the simple life fit for the most fastidious.

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Rail and Road Safety

Few things move more mysteriously than the daily press when about its business of distributing publicity. At the Easter holiday, after the gloomiest prophecies of the probable toll of the roads had been made in authoritative quarters and the country was waiting to see to what extent they would be proved correct, the newspapers suddenly decided to pay quite disproportionate attention to two rail mishaps, of which the more serious involved only minor casualties. The accidents at Caterham on the Southern and Kilburn on the L.N.E.R. were not only reported in considerable detail, but were made the subject of alarming posters. Free play was made with the dramatic words " smash " and " crash " which, thanks to their frequent association with road accidents, have acquired an implication of seriousness at which the public may justly have been alarmed. Happily the toll of the roads fell far short of the one hundred dead and many hundreds injured suggested by the Minister of Transport. Even so, it compared unfavourably with the record of the railways. Moreover, the number of road deaths appears to be still increasing. It was 7,207 in 1933, compared with 6,667 in the previous year. The toll of injured rose by nearly ten thousand over the same period. Yet it is still only the most disastrous road accident that is honoured by a newspaper poster.

* * * *

Germany Accelerates Again

A revolutionary programme of acceleration characterises the summer time-tables of the German State Railway, which, in conformity with those of the other European countries, are to be brought into operation on May 15. The labour of time-table revision on this scale in a country so criss-crossed in all directions with important main railway routes as Germany must be herculean; but clearly there is no shirking of the task. And it is pertinent to add that no falling-off whatever in the very high standard of German punctuality appears to follow these substantial time-cuts—a fact which in itself witnesses to the scientific thinking brought to bear on time-table planning of so ramified a description. On page 589 of this issue a review of some of the principal changes is given. It will be seen that accelerations ranging from 30 to 40 min. a train are to be made in the whole of the express train services between Berlin and Cologne, and Berlin and Munich, introducing such unprecedented times as 6 hr. 25 min. over the 362½ miles from Cologne to Berlin (24 min. of which are spent in the stops at Hamm and Hannover), and 7 hr. 32 min. over the 418¾ miles between Berlin and Munich—an acceleration in the latter case of 51 min. on the best previous time. A whole crop of new mile-a-minute bookings is introduced in consequence, such as 102 min. over the 109½ miles from Hamm to Hannover, 147 min. for the 158 miles thence to Berlin (Zoo), and 121 min. for the 173¼ miles from Munich to Nuremburg. Nor has the last word been said, for, as our article shows, next year will see the institution of many more light super-high-speed services of the Flying Hamburger type.

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The Blue Danube Express

More ambitious efforts than ever previously are being made this year to attract holidaymakers to the Continent, and not merely across to the other side of the Channel, but to countries which until now the average tourist would probably have dismissed from his mind as inaccessible. Hungary, for example, is offering remarkable inducements. The first essential of comfortable travel is through service, and this is therefore being given in the Blue Danube Express, which is to run on certain specified dates from Ostend through to Budapest. The passenger will breakfast in London and dine on the evening of the following day in the Hungarian capital; he is, moreover, to be conveyed in first-class sleeping and Pullman car stock; and the cost of travel will be less than the ordinary second-class return fare. Another exceptional facility is to be offered this year, as last year, in the so-called " Anglo-Hungarian Exchange " tours, which will take their fortunate patrons, in through trains without night travelling, successively to Lausanne, Venice, Budapest, Vienna, Lucerne, and Paris, at a cost, including excellent hotel accommodation for a fortnight and special facilities in the Hungarian and Austrian capitals, only £3 greater than

that of ordinary second-class tickets alone over this lengthy itinerary. The counter-attraction of the cruise, at prices to suit all purses, is now firmly established, but the extension of such facilities as those just mentioned is likely to allure many to that more intimate acquaintance with European countries which only overland travel can really give.

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And the William Tell Express

It cannot be claimed that to the tourist Switzerland is a *terra incognita* of the order of Hungary, and the fame of the Alpine wonderland is such that less inducement is needed to make the holidaymaker visit it, providing funds permit. It is to bring the cost of the journey within the range of all pockets that special train facilities, on a wide range of dates, are being arranged between London, Calais and the most popular Swiss resorts. In conformity with the present fashion of naming trains, this special through service has been named the William Tell express, and with its aid, despite gold standard difficulties in the French and Swiss exchanges, all-in rates for travel and accommodation are being announced by the leading travel agencies on a lower scale than for many years past. Incidentally, the agencies' first announcements implied that each had boldly chartered its own William Tell express, presenting the mental picture of a quiverful of these arrows of travel in simultaneous flight across the Continent towards the apple of desire in the heart of the Alps. This may be exaggerated, but at all events it is a good augury for the success of the venture that the first William Tell excursion, which left Victoria on the Thursday before Easter, had to be run in two portions. The William Tell is to be run every Saturday from Whitsun to September 8.

* * * *

The Shadow and the Substance

In his contribution to the debate on the Lagny disaster in the Chamber of Deputies, Monsieur Flandin, the French Minister of Public Works, outlined the programme which would be necessary to increase the already high standard of safety on the railways. Thousands of new steel coaches would have to be built to ensure that no express trains were made up of the comparatively frail stock of which the demolished Nancy train at Lagny was composed. Enormous quantities of electrical and signalling apparatus would be required to instal on all the French railways the continuous cab signals now being tried on the Cherbourg line of the Etat. Widening works and the enlargement of inadequate depots would involve the use of much material and the employment of much labour. All these works completed would virtually guarantee a hundred per cent. safety to railway passengers, but, alas, it is said they are beyond the financial resources of the French, and therefore only a tithe of what is needed can be done. Of course, they are not beyond the physical resources of France, but the French, logical as they are supposed to be, are not more so than any other nation in regarding the shadow of finance as more substantial than the realities of applied science.

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The Great Western A.T.C.

The intimation that Tyer & Co. Ltd. has secured the exclusive rights for the manufacture, for use at home and abroad, of the automatic train control system used on the Great Western Railway is of interest for many reasons. The system is in use on the Great Western main lines from Paddington to Plymouth, Swansea and Wolverhampton, but there is a large territory outside these limits still to be equipped. The slowness of the other companies to copy their neighbour's example can hardly be due to any objection to the G.W. system; in fact, an outstanding merit of this company's equipment is its simplicity. Simplicity, as was shown in the discussions at the Cairo International Railway Congress in January, 1933, and at the Institution of Railway Signal Engineers in April, 1933, is the ideal of A.T.C. It is safe to anticipate that when the financial position of the railways improves money will be spent in this direction, in that A.T.C. means greater safety and better running under all conditions. A recent improvement is the elimination of local batteries on the engine, a further step towards simplification and economy.

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The Hellifield Fatal Collision

The persistent fog that prevailed in Lancashire and Yorkshire for most of December contributed to the fatal collision on December 6 at Altrincham, the report on which was reviewed in our issue of March 9. Nearly a fortnight later—on December 19—a more serious mishap occurred under similar conditions in the down loop at Hellifield. A freight train from Huskisson Dock arrived in the loop and was broken up after the brake van had been detached. Before the shunting movements could be completed it was found necessary to set the brake farther back. This was done more violently than was necessary—no doubt a result of the fog—and the brake ran back down the loop. As the loop points were set for a following train from Ancoats, the trap points lay for the main line. The signalman in the box there did not, again owing to the fog, see the oncoming brake, which ran back on the falling gradient of the main line until it met the Ancoats train. The runaway brake van derailed the train engine, which rolled down the bank, killing the driver and fireman. The accident was inquired into by the late Lt.-Col. Anderson, whose recommendations are summarised on a later page.

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From Oil to Mechanically-Stoked Coal

Owing to low sea freights from the Persian Gulf to Karachi and Bombay, it was until recently, considered economical to utilise oil fuel, as far as possible, for engine runs terminating at those Indian ports. Since the electrification in the Bombay area, however, steam locomotives formerly stationed at Bombay have been either handed over to the North Western Railway to continue working on oil from Karachi, or sent to work inland on the G.I.P. system. The latter course has necessitated conversion to coal burning, but in the case of the N.1 class 2-10-0 goods engines which, with their 45 sq. ft. grate area and 50,000 lb. tractive effort, have to take 1,600-ton loads over the long and severe grades between Bhusaval and Igatpuri, this called for the fitting of a mechanical stoker. Benefiting by wide American experience in such matters, it was decided to fit a Standard BK-1 stoker, which, driven by a small auxiliary engine on the footplate, crushes the coal in a hopper on the tender and delivers it by means of a screwed shaft through a tube to the firedoor. There the coal spills on to a tray from which it is distributed evenly over the grate by steam jets adjustable to regulate the depth of the fire at any point. The speed of the screw is also variable, the rate of firing thus being readily controlled by it and by sliding doors regulating the supply of coal from the hopper to the tube. The screw is reversible in case of a jam and, to allow for movement between engine and tender, the shaft and tube are jointed. The conversion work, entailing alterations to the tender, grate, ashpan, smokebox and the fitting of the stoker, was undertaken by the Parel shops, Bombay, and was described recently in the *G.I.P. Railway Supplement*.

Transport Problem in Northern Ireland

FOR a long time past it has been common knowledge that the transport position in Ulster has been receiving the serious consideration of the Government of Northern Ireland. That the railway position is precarious is evident from the allusions to the subject made by Sir Josiah Stamp and Sir Lingard Goulding at the recent annual meetings of the London Midland & Scottish and Great Northern (Ireland) Railway Companies. Sir Josiah Stamp said in an answer to a shareholder that the railway position in Ulster was one of very great difficulty. In common with other railways in Northern Ireland the railways of the Northern Counties Committee had been most severely hit by competition from public roads, quite apart from the damage caused by the strike in the earlier part of the year, and the general industrial position. The railways there had made joint representations to the Government of Northern Ireland, and were hopeful that in the near future there would be legislative and administrative action by the Government which would secure equality of treatment in transport conditions in that area. That equality of treatment, remarked Sir Josiah Stamp, was certainly sadly lacking at present.

Sir Lingard Goulding, for his part, similarly said that in the circumstances caused by the strike and the tariff dispute between Great Britain and the Irish Free State, it was vital to his company's existence that wasteful competition for the traffic available should be eliminated. Competition of that description by road unfortunately still continued. Northern Ireland had not yet helped in legislation as had been done in England and the Free State, but he trusted that the Government of Northern Ireland would at an early date adopt measures, which, while being fair to all parties, would successfully relieve the dire distress of the railway companies in their area. Of the decline in receipts which had been encountered since the strike it was estimated that some 70 per cent. was attributable to the northern portion of the line. A declaration was recently made in the Parliament of Northern Ireland by The Rt. Hon. J. Milne Barbour, the Minister of Commerce, that the Government had under consideration the whole question of co-ordinating road and rail transport, and that a measure dealing with the matter would be introduced at an early date. We now learn that Sir Felix Pole, formerly General Manager of the Great Western Railway Company, and now Chairman of Associated Electrical Industries Limited, has consented at the request of the Rt. Hon. Sir R. Dawson Bates, Minister of Home Affairs, to advise the Government in an honorary capacity on this most urgent problem. It is to be hoped that this will lead to an early and satisfactory solution of the whole matter.

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Signalling on the P.L.M.

THE development of signalling in France has been closely connected with the practice followed on the Paris-Lyons-Mediterranean Railway, which is not only the largest French railway but one of the most important on the entire Continent. The P.L.M. Company early perceived the advantages to be derived from the use of the interlocking and block systems and was not backward in adopting these improvements on its lines. It had paid so much attention to the subject and had evolved for itself such a satisfactory signalling code and set of rules that when, in 1885, with the object of bringing some degree of uniformity into the then confused signalling arrangements to be found on the different French railways, the Government established the "*Code des Signaux*," the requirements and recommendations contained in it were based principally on P.L.M. methods. P.L.M. influence, it may be mentioned, has also been to the fore in the revision of that Code, undertaken after the war at the wish of the Government by a committee presided over by a P.L.M. officer, M. Verlant, then Directeur de l'Exploitation, and having for its secretary M. Tuja, that gentleman's chief assistant. The adoption in the new Code of a calling-on arm beneath a semaphore, hitherto unknown in France, to enable the signal to serve as an absolute or permissive stop signal, is undoubtedly a P.L.M. idea. When it introduced the absolute block system the P.L.M. adopted the one-wire needle block instruments produced by that remarkable British signalling pioneer, Edward Tyer. The Tyer's block appears to have been first used on the P.L.M. for the protection of trains through the long tunnel at Blaisy-Bas in 1856. It was then progressively installed on the entire main line from Paris to Marseilles, 536 miles. An interesting development in this connection was the introduction of the Jousselin step-by-step train describer as an adjunct to the block in 1879, its inventor being then chief electrician to the railway. This describer is still in use all over the line and has only lately given place to the St. Chamond-Granat apparatus in the most recent power signalling installations. In 1861 the P.L.M. adopted the Prudhomme passenger and guard electric intercommunication system, used also by the Nord.

After using the Tyer's block for some years the company evolved a lock-and-block of its own, which was standardised about 1900 under the name of the "Block P.L.M. No. 3," in the form now in general use. It is not really a complete lock-and-block, since there is no rail contact, but it has an automatic "train on" indication, worked by the replacement of the signal in the rear, starting signal locking, and a mechanical control on the plunger which is used to free the cabin in the rear. In its working programme, and even in some constructional details, it closely resembles the Sykes apparatus of the Great Eastern pattern. The heavy traffic on the P.L.M. main line, which necessitates the running of expresses from Paris at very close intervals, makes it essential to have block posts placed fairly near together. The average length of the sections between Paris and Dijon, 196 miles, is 3 to 4 km. and it is intended to reduce it to 2 km. when automatic signalling is installed. Between Paris and Lyons, 318 miles, there are 237 block posts. Several improvements have been made in the block working in the last few years. As a result of an accident at Sens some ten years ago, caused by a signalman, who had probably been asleep, concluding that a train which had broken down in the section had passed him and accepting another one, the company decided to instal continuous track circuiting to supplement the block. The whole line from Combs-la-Ville, 17 miles out of Paris, to Dijon is now equipped, and the remainder to Marseilles will be completed by 1936. From Paris to Combs-la-Ville and Corbeil (20 miles out) automatic light signalling is being installed. A peculiarity of P.L.M. signalling for many years lay in the fact that no use was made of the green and white repeater signals, to be seen on the other lines, the red disc being employed in the double capacity of outer protection signal and warning for a block semaphore ahead. Unlike the Nord, which had allowed its drivers to come forward slowly without making a stop, if hand-signalled to do so, the P.L.M. adhered strictly to the Code and insisted on a stop being made after passing a red disc at "danger," in order not to weaken the authority of the signal. This method of working, however, was bound to cause many unnecessary stops and, at last, in 1930 the company began to replace the discs by repeater signals at the intermediate block posts. The improvement

in the running of the trains has been such that the elimination of the discs at the small wayside stations is now being taken in hand. All manually worked signals on the P.L.M. are kept at "danger" until a train is announced, although the block is normally free.

Two important signalling devices used extensively on all French lines owe their existence to P.L.M. officers. They are the Aubine mechanical treadle for signal reversing and the Bouré key interlocking system. The former was introduced just seventy years ago. Its inventor's name has become a household word to such a degree that to reverse a signal automatically is termed to "aubine" it. All the red discs and large numbers of other signals are fitted to-day with the apparatus devised by the telegraph inspector of Dijon. The Bouré key interlocking system dates from 1895 and has been very extensively used. Its designer was an assistant engineer and sought to improve on an earlier arrangement due to M. Picard, then Traffic Manager. One of the largest installations made was that at Chantilly race station on the Nord, in 1897, with a central apparatus containing 39 keys for the control of the signals and points for ten platform lines. The fundamental principle of all key locking systems is necessarily the same, of course, and Annett's key appeared long before Bouré's system, but a great advantage of the latter apparatus was the readiness with which it could be applied to simple forms of ground lever without modification. It is commonly used to-day at the simpler country stations, affording a much cheaper arrangement than the installation of a lever frame, rodding and wires. In one respect, perhaps, the P.L.M. may be regarded by some as not quite so progressive as the other lines, and that is in the use of automatic signalling. It is true that as long ago as 1900 it put in a trial installation between Laroche and Cravant, with motor-worked signals, but as yet little more has been done, save in the neighbourhood of Paris, with light signalling, and here and there with intermediate signalling. In 1926, however, the company sent a committee of investigation to the United States, headed by M. Japiot, to study the automatic block on double lines there and then to consider the conditions on the Paris-Dijon section, with a view to its being signalled automatically. The report of this committee, a volume of 597 pages, recommended the adoption of light signals on certain sections and of the upper quadrant three-position semaphore on others. One interesting opinion it expressed was that it was not advisable to use polarised track-circuit controls and that line circuit working was decidedly to be preferred. It also stated that the American junction speed-signalling seemed unduly involved and that signals to indicate speed regulation should be quite distinct from those denoting the condition of the block section ahead. This principle has since been adopted in the revised French signalling code.

The P.L.M. was early in the field with power signalling, having tried and adopted in 1898 the all-electric apparatus designed by one of its engineers, M. Rodary, in conjunction with M. Ducousso, of the Midi. Allowing for some improvements in details, it has remained faithful to this system and has equipped several cabins with it from time to time. In more recent years the company has favoured the latest form of the Bleynie-Ducousso route-lever system, first installed on the Midi at Bordeaux in 1903. The Rodary Ground apparatus is still used with this route-lever working. Quite a number of route-lever cabins are now at work on the P.L.M., but the largest of all is that at the rebuilt Gare de Lyon in Paris, where there was formerly a 200 lever Saxby & Farmer mechanical locking frame. The new cabin contains two route-lever frames, only one of which, with 320 handles arranged in four rows, is as yet in work. When completed this installation will rank among the largest and most important in Europe. Clearly, the P.L.M. Company spares no pains to employ efficient and up-to-date apparatus for the protection of the heavy and important traffic which is conveyed over its lines.

Agreed Charges

ON March 23 the Railway Rates Tribunal delivered judgment approving a number of applications made by the railway companies for permission to introduce "agreed charges" in respect of the conveyance of traffic on behalf of certain traders. These applications, which numbered 36, were the first to be made under the Road and Rail Traffic Act, 1933, and each was for the approval of an agreed charge in the form of a flat rate for the carriage of goods or passenger traffic from one or more forwarding points to specified stations, or to all stations within a specified area, or to all stations in Great Britain, including in some cases the Channel Islands. These flat rates were either on a tonnage or package basis, and the agreements between the railway companies and the traders included a provision to the effect that the latter should hand to the railway companies the whole of the traffic to which the agreed charge was applicable.

It was made clear in evidence to the tribunal that the object of these agreed charges was to give the traders a charge which they required for the purpose of facilitating their business or enabling them to effect accounting and clerical economies in return for their undertaking to forward the whole of their traffic by railway, except such packages as they might desire to send by parcels post. So far as the railway companies are concerned, the evidence showed that, while an appreciable saving is being effected in railway clerical costs, it is not always possible to quantify these at the outset. Of much greater importance, however, is the fact that the introduction of agreed charge arrangements will secure additional traffic to rail, and eliminate the risk of diversion to road hauliers. In every case the agreed charge represents as nearly as possible the true average charge or cost per unit of the trader's transport costs for a representative period. In its judgment, the tribunal intimated its satisfaction that the net revenue of each railway company interested in each agreed charge might reasonably be expected to be greater than if the charge was not introduced, and that the object of these particular charges could not adequately be secured by the grant of exceptional rates under the Railways Act, 1921.

It is interesting that a further twenty agreements relating to agreed charges have already been reported to the tribunal, all of which, except one, are on a tonnage, package or animal basis, and there is little doubt that, judging from the number of inquiries which the railway companies are receiving, these agreed charges are proving decidedly attractive to a number of traders. The remaining application relates to an agreement made between the four main line railway companies, the London Passenger Transport Board, and the Mersey Railway on the one side, and F. W. Woolworth & Co. Ltd. on the other for the conveyance of their traffic on an *ad valorem* basis. The introduction of a charge on this basis is a distinct innovation so far as the railway companies are concerned, but not in the case of road hauliers. The particular charge proposed in this instance is 4.25 per cent. of the total value of the goods purchased by the firm during the year 1934. The application was opposed by a number of important traders' organisations, and, after a somewhat lengthy hearing, the tribunal has reserved its judgment, which, owing to the unusual nature of the proposed charge, will be awaited with keen interest in railway and commercial circles.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of Correspondents)

Large or Small Wagons?

The Railway Commission,
Bulawayo,
S. Rhodesia.
February 28

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I am horrified by your absurd note on "Large or Small Wagons" appearing on page 123 of THE RAILWAY GAZETTE of January 26. Do you really think that, as the English standard 12-ton wagon is hardly ever filled to capacity, the railways should reintroduce the 4-ton wagon because general merchandise only loads on an average 2½ tons per wagon? I thought it was generally recognised even by journalists that the average load of a wagon is hardly ever above half its carrying capacity.

Yours faithfully,
ROGER GIBB

[The editorial note to which Mr. Gibb refers pointed out that in the U.S.A. where the goods rolling stock is all of the large bogie type there had been an agitation for the introduction of small cars, it being argued that one of the most effective ways to regain traffic lost to road motor transport would be to introduce on a large scale small cars to deal with the smaller consignments now common. We were not aware of the "law" to which Mr. Gibb refers that the average load of wagons is hardly ever above half its carrying capacity.—ED. *R.G.*]

Automatic Couplers

Manchester Unity Building,
Sydney, N.S.W.
February 1

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—In THE RAILWAY GAZETTE of September 8, 1933, on page 344, there appeared a note on the use of automatic couplers in Australia, permitting the handling of heavier loads. Although the decision to adopt auto-couplers was recommended by the Interstate Officers' Conference and approved by the Commissioners in 1912, perhaps a brief history of their inception and present position will interest you.

The auto-coupler transition devices of various inventors were tried out in traffic by the N.S.W. Railways, 4 ft. 8½ in. gauge, and the Commonwealth Railways, also 4 ft. 8½ in. gauge, decided to adopt the M.C.B. coupler at once, it being considered that by the time unification of gauges to 4 ft. 8½ in. was accomplished, enough vehicles fitted with transition couplers would be available for coupling with Commonwealth auto-couplers.

The English traction centre line, used in Australia, being 3 ft. 5 in. above rails, and that of the U.S.A. being 2 ft. 11 in., created a difficulty and a few attempts were made to compromise with some intermediate measurement less than the six inches difference. Eventually it was agreed with Mr. Gahan, C.M.E. (now Commissioner), Commonwealth Railways, to adopt a 2 ft. 11 in. traction centre above rails for all transition draw gear, and I designed the slot cast integral with M.C.B. coupler head 3 ft. 5 in. above rails to carry a three link chain. It was then agreed that only the strongest of the old vehicles, capable of absorbing the unsymmetrical draw hook loading, should be so fitted, and the more feeble old stock be maintained with its draw gear and buffer centre line unaltered.

A difficult problem was the side buffer system for freight stock fitted with transition auto-couplers, to ensure shunters' safety and provide no resistance to traction on curves. This was overcome by fitting short buffers at 3 ft. 5 in. centres above rails whose opposed faces would not contact by one inch clearance when two auto-coupled vehicles were coupled together.

At the present time thousands of wagons in South Australia, Victoria and New South Wales have transition auto-couplers and when all vehicles are fitted side buffers may be entirely removed. Mr. Shea, Chief Mechanical Engineer of the South Australian Railways, has invented a transition coupler for engines which couples with chains, screw couplings or auto-couplers.

Yours faithfully,
E. F. LUCY

A Passenger's Criticisms of British Railways

Little Fir Knob,
Churt Road,
Hindhead, Surrey.
March 31

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—May I be allowed to comment, briefly, on your kindly review of the proceedings at the last meeting of the G.W.R. Debating Society, London, when I read a paper entitled "A Passenger's Criticism of British Railways"?

I realise, and have always realised, that an individual passenger's criticism of railways carries no real weight with railway managers, and rightly so; but what does matter—and matters very much indeed—is the criticism of a large and representative body of the travelling public, when obtained under scientifically controlled conditions and capable of statistical interpretation; and so we return to the point where I started, *viz.* my letter published in your issue of January 12, under the heading of "A Layman's Criticism," in which I advocated the need for psychological investigation.

Therefore, let me commend to British railway officers the study of the ballot recently distributed to more than 200,000 experienced travellers by the Federal Co-ordinator of Transportation in the U.S.A., with the idea of receiving criticisms and suggestions from the public.

This is a serious and scientific attempt to discover what the American public really thinks of its railroads. The results of this ballot, which is said to take 17 minutes to complete, should be highly instructive. I anticipate that for once pet ideas and opinions will have to make way for good, solid facts!

Yours faithfully,
G. N. MOUNT

London.
April 3

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Bearing on Mr. Mount's criticisms and his paper before the G.W.R. Debating Society (reported in your issue of March 30), may I give you my own experiences on a journey from London to Chesterfield and back at the Easter holiday week-end? On the outwards trip, the 10.0 a.m. from Marylebone was well "strengthened" with modern stock, so that all passengers were carried in perfect comfort, and although the train is timed over most of its journey at 58-59 m.p.h. and is very sharply booked at stations, the arrival at Nottingham was punctual, and the local train which follows it to Chesterfield arrived dead on time. Incidentally, as we crossed (punctually) over the L.M.S. line at Loughborough, the 10.0 a.m. from St. Pancras (some 15 minutes late) was passing beneath us.

The return journey by L.M.S. (Midland Division) was another story. Although running only 10-15 minutes late, the train had no extra vehicles beyond what I believe to be its normal formation (which is well within the capacity of the engine working it), and the passengers were most uncomfortably crowded—standing in the corridors on arrival at Chester-

field, and afterwards packed four-a-side into some very antiquated compartments and into the restaurant-car. "Thirds" were in firsts without any distinction. Surely this is not the way to popularise long-distance holiday travel, and the inconvenience, in this particular case, could easily have been avoided.

Yours faithfully,

VIATOR

[Perhaps "Viator's" return journey was the exception that proves the rule, for we happen to know of other L.M.S. passengers who had most comfortable and punctual journeys despite the heavy holiday traffic.—ED. *R.G.*]

The Signal Engineer's Department

London, W.12
February 21

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I have for a considerable time now made applications to overseas and colonial railways, but have so far not met with success. The present conditions appear to be against retaining signal departments, and, even where there are departments, when officers retire the vacancy is rarely filled.

Presumably signalling is not considered sufficiently important for the railways to have efficient signal departments. In fact, some railways now have no signal department at all. Such railways do not seem fully to realise the importance of signalling or of the high efficiency required to carry out and attend to signal work.

Even maintenance is reduced to a minimum. This in itself is a retrograde step, as not only are staffs curtailed but maintenance also suffers. One is bound to ask, what is to become of the status of signalling, the Signal Engineer and his department?

For signalling to be handled by those with only a superficial knowledge of the subject is not working in the best interests of the railway's safety. It must not be forgotten that signalling is not just a signal arm fixed to a post at "danger" and pulled "off" by a lever. Signalling should be looked after, directed and installed by a Signal Engineer attached to the railway and working for the railway's security. Railways large and small should always keep their systems properly signalled and carefully maintained.

Yours faithfully,

F. MAHONEY

Gunnesbury Park, March 19

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Mr. C. M. Jenkin Jones, when reading his paper at the Institute of Transport, stated: "The task of the Signal Engineer is to place his technical knowledge at the service of those who have to run the trains, and it is of importance to him, therefore, to know what they think and what it is they want."

If only this were better realised by overseas and colonial railways, especially those which have chosen to disregard the Signal Engineer and employ other departments to carry on with signal work! Can the Signal Engineer be regarded as superfluous? Cannot railway managements appreciate his worth? Cannot it be seen that the Signal Engineer is the means of allowing the Traffic Department to run trains more economically and with greater speed and safety?

However efficient the methods of other departments may be, the best results can only be obtained by a department specialising in signalling, and signalling alone. If a railway is to be kept equipped with properly maintained apparatus, operating in the most economical manner, it must possess an efficient and well trained signal staff.

Yours faithfully,

GEO. BAKER

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c/o Bank of British West Africa,
37, Gracechurch Street, E.C.3
March 16

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Some of your correspondents seem to have got their facts wrong in their references to the Signal Department of a Crown Colony railway. As an example, consider the single-track Nigerian Railway. Here we rely for safe operation on the electric train staff system. Our signals are a secondary precaution and are confined generally to home signals for each station track, interlocked with the facing points. It is clear that to introduce a Signal Department on such a railway would be a useless expenditure. Such a Department would probably spend its time trying to justify its existence by putting up elaborate schemes that would certainly be turned down by the management.

Yours faithfully,

G. V. O. BULKELEY,
General Manager, Nigerian Railway

Stoke Newington.
March 26

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The present day call for economy has resulted in the tendency on certain overseas and colonial railways to divert the work and care of signalling from the fully experienced Signal Department to the tender mercies of other less experienced departments.

Such railway managements do not perhaps fully appreciate what was done in earlier days and how much time and thought was spent in perfecting signalling systems which have enabled railways to-day to provide a very high degree of safety and train services to be successfully operated with high speed.

It seems only right and proper to suggest that such railway managements should not forsake the Signal Engineer when their railways are safe and in good working order. The apparatus, schemes and equipment will still be required to be kept in perfect order, and such work can only be carried out with complete satisfaction by the Signal Engineer. Besides new developments, alterations and additions to the system are ever taking place and the Signal Engineer is certainly the man to deal with such work, not the novice from the other departments who are at present taking care of signalling.

Yours faithfully,

JAS. KINGSTON

Pool Trains in Canada

Further curtailment of competition between the Canadian National and Canadian Pacific Railways became effective on and from March 11. For some time past the fast afternoon services between Montreal and Toronto, which under competitive conditions had been brought down to a 6 hr. run over the C.N.R. 334-mile route, and to 6¼ hr. by the C.P.R. 340-mile route, have been fused into one 6½-hr. service in each direction; westbound, this has started from the C.P.R. Windsor station in Montreal, and eastbound the corresponding express has run into the C.N.R. Bonaventure station. From March 11, however, the C.P.R. Windsor station is used in both directions, though the train is transferred to and from C.N.R. tracks at Dorval, just outside the city, and is worked throughout by C.N.R. locomotives. The fast morning services have also been pooled, using the C.N.R. Bonaventure station in both directions of running, with consequent withdrawal of the morning C.P.R. expresses between Montreal and Toronto. Connecting pool trains are run between Ottawa and Brockville, assuring the continuance of the through services between Ottawa and Toronto. On the other hand, the C.P.R. has now pooled the three principal trains between Montreal and Quebec, two of the corresponding C.N.R. trains in each direction having been withdrawn. Savings estimated at 500,000 train-miles per annum are expected to accrue from these alterations. Further possible economies now in course of investigation relate to the joint use of terminals, hotels, telegraphs, and express services by the two companies.

PUBLICATIONS RECEIVED

Camp-Coach Holidays.*—In connection with its scheme of holiday camping coaches, the Great Western Railway has issued a booklet with the above title giving particulars of the facilities offered. A foreword, incorporating much sound advice to prospective campers, has been contributed by C. J. Cutcliffe-Hyne. "Camp-Coach Holidays" describes the 19 sites in Somerset, Devon, Cornwall and Wales where the carriages are at present situated, with sketch maps of the system showing the nearest stations in heavy type. A selection of practical hints on camping, a list of the equipment provided in every coach, which is remarkably complete, and an application form with details of charges complete the booklet.

Camping Holidays.*—The L.N.E.R. contribution to camping holiday literature covers an extensive field. In addition to particulars of this year's camping coaches and the localities at which they will be stationed, there is a section dealing with the Youth Hostel Movement, and a list of sites adjacent to the L.N.E.R. which are available for the tent camper. C. J. Cutcliffe-Hyne writes a foreword to the camping coach section, which is a mine of good advice to all who intend to desert hotels and boarding houses this summer. The functions and organisation of the Youth Hostel Association are described in a preface to a complete list of the accommodation provided in the L.N.E.R. area, diversified by topographical and historical information. Camping sites are represented in a directory notable for its clearly arranged, well printed, and copious particulars of the essential details relating to each. A folding map of the L.N.E.R. system shows the situation of all the camping coaches and Youth Hostels mentioned in the booklet.

The Casting of Brass Ingots. By R. Genders, M.B.E., D.Met., and G. L. Bailey, M.Sc. London: British Non-Ferrous Metals Research Association, Regnart Buildings, Euston Street, N.W.1. 10 in. × 6 in. Pp. 191. Price 15s.—The research monographs published by the British Non-Ferrous Metals Research Association are well known as embodying the most recent information available on the subjects treated. In the present volume, the third of the series, the authors summarise the results of work that has been carried on by the Association for several years in the investigation of ingot casting. The vital importance of this stage in the manufacture of wrought metals makes every addition to existing knowledge of great interest. Dr. Genders and Mr. Bailey contribute information which will have a considerable influence upon metallurgical practice. Four chapters of the book are devoted to a very complete analysis of the ingot casting process, incorporating much of the experimental evidence that has been adduced during a lengthy period of research. Suitable materials for the construction of ingot moulds are discussed, and the authors put forward a number of practical suggestions for modified and improved casting methods, concluding with a description of such novel systems as the Durville and Erical processes. The stages of production preceding casting are dealt with in detail in a series of chapters on the physical factors influencing the molten metal up to the moment of solidification. An historical sketch of ingot casting from the sixteenth century until the present day, with notes on recent crucible furnace practice, prefaces the sections already mentioned. The book is copiously illustrated with diagrams and photographs. There are appendices on the constitution and qualities of various grades of brasses and a comprehensive index.

Gauge Policy on Indian Railways. By R. N. Kitchlew, B.Sc. Allahabad: Published by the author, 37, Kutcherry Road. 7½ in. by 5 in. 121 pp. Price Rs. 2.—This little book is a painstaking attempt to view the knotty problem of Indian gauges from all angles. It begins with a history of the selection of the gauges, the reason for the choice of 5 ft. 6 in. being particularly interesting. Narrower gauges were at first countenanced only as feeders to the broad, and Government, in the early sixties, ruled that they should not be allowed to grow into a system which would compete with the broad (or standard) gauge. Economic conditions and famine relief works subsequently caused a swing of the pendulum in favour of narrower gauges, though for strategic and main lines the standard gauge was still favoured, and the larger metre gauge bridge spans were designed for conversion to broad gauge. So these two gauges grew up side by side, together with a few 2 ft. 6 in. and 2 ft. narrow gauge feeders to the broad in certain parts of India. And so break of gauge at many points and duplication of lines—broad and metre running side by side—at some others has been the curse of Indian railways. Uniformity of gauge is therefore still advocated, but particularly in view of expanding air services and the very heavy financial cost which would be involved, it is now almost beyond the bounds of practical politics.

Southampton Docks Handbook, 1934.—The 1934 edition of the Southern Railway Southampton Docks Handbook comprises a complete account of the resources of the port, together with tables of rates and charges, regulations, and a review of developments now in hand. The book is profusely illustrated with full-page photographic plates, which are in themselves a testimony to Southampton's possibilities. Among the large-scale coloured maps and plans are two illustrating respectively the docks extensions on the western shore, included in which is the King George V graving dock, opened last year by the King, and the direct rail connections between Southampton and the principal towns in Great Britain. The leading ports of the world accessible from Southampton are listed alphabetically, with the shipping companies maintaining the service and the frequency of sailing. The handbook is sold at 6d.

Report of the Indian Coal Grading Board. Calcutta: Government of India Press.—The report of the Indian Coal Grading Board for 1933 summarises the objects for which the board was constituted and the work carried out during the past year. While the grading of coal and the granting of certificates for export are its main functions, the board's officers are continually inspecting colliery workings, and special attention is given to collieries where there is any indication of slackness. The report describes the methods of analysis used in grading and the characteristics of the several grades adopted as standards. Eleven appendices include a list of the Indian collieries having graded coals and tables and diagrams of coal shipments from Calcutta since 1928. A large-scale map of the principal Indian coalfields has been annexed to this issue of the report.

Steel Products.—We have received from Edgar Allen & Co. Ltd., Imperial Steel Works, Sheffield 9, illustrated folders describing stainless steel casting, and pins and bushes for elevators, conveyors, dredgers, &c., in manganese and other steel alloys. Both the above will be sent to those interested on application. The same firm also submits an attractively produced series of steel selection and treatment tables. The tables are bound in such a form as to be suitable for wall hanging and are arranged to facilitate instant reference to the section required.

Mortisers.—Thomas Robinson & Son Ltd., Rochdale, sends a catalogue of chain and hollow chisel mortisers. The larger machines, suitable for railway carriage and wagon work, will take timber up to 12 in. square and provide for single and double mortising. A boring apparatus can be supplied with one model. The rate of feed is variable in the large machines and a handwheel permits the stroke of chisel to be adjusted whilst work is in progress. Motor or belt drive may be used as required. The catalogue also illustrates spacing-out and line indicating attachments, mortise chain and hollow chisel grinders, compressed air cramps and a system of spot or directional lighting for illuminating the operator's work.

* We comment editorially on page 564. Pictures of camping coaches are reproduced on pages 586 and 594.

THE SCRAP HEAP

Trifles make perfection, but perfection is no trifle.

* * *

University lectures for railwaymen are now being suggested. LL.D. in future will, we take it, denote Licentiate in Luggage Destruction.—*From the "Daily Herald."*

* * *

Railway-tickets are sold at several London clubs. At one institution, we hear, a subscription has been opened to present a loquacious member with a first single to Land's End.—*From "Punch."*

* * *

WHO WANTS A STATION?

The London Midland & Scottish Railway is looking for a tenant for its old station at Leigh-on-Sea. A previous venture of this kind has made the company landlord to a troop of boy scouts, who now occupy Finchley Road (Midland) station. One feels that disused railway premises will have an even stronger appeal for a similar organisation catering for the opposite sex, whose members would be able to exercise their privilege of arriving late without the disadvantage of missing the train.

* * *

The following inscription appears on a gravestone in Harrow-on-the-Hill churchyard :—

To the memory of John Port of Burton-upon-Trent in the county of Stafford, hat manufacturer, who near this town had both his legs severed from his body by the *railway train*. With the greatest fortitude he bore a second amputation by the surgeons and died from loss of blood on August 7th 1838, aged 33 years.

Bright rose the morn and vig'rous rose poor Port
Gay on the *Train*, he used his wonted sport
Ere noon arrived a mangled form they bore
With pain distorted and o'erwhelm'd with gore.
When evening came to close the fatal day
A mutilated corpse the sufferer lay.

* * *

LOCKED UP IN A TRAIN

When Bob Wright, a ganger at Wellingborough station, unlocked the doors of a goods guard's van in a siding, he found a man inside.

"Well, I'll be jiggered!" said Bob Wright. "How long you been there?"

"Since Friday nicht," came the weary answer.

Then the man told his story.

His name is Douglas Gilbert, his town is Glasgow. He left home to look for work down South. He got to Corby, Northants, last Friday, and got into the guard's van for a sleep.

Soon afterwards a guard locked the doors of the van, as is customary, and the train was shunted from Corby to Wellingborough for the holiday period. —*From "The Evening News."*

COST OF A SNOWSTORM

It is customary after a snowstorm to estimate more or less roughly its cost to railways and tramways affected. The Great North of Scotland puts the price of the New Year blizzard very precisely —an extra ½ per cent., which shareholders do not get.—*From "The Glasgow Herald" of 25 years ago.*

* * *

Mr. J. R. Hind, L.N.E.R., writing to *The Daily Mail*, says:—"I have found railway passengers much more sociable in the north than in the south."

* * *

CHEAPEST FORM OF LAND TRANSPORT

"We have got the cheapest form of land transport in the world in opposition to us, and that is the camel."—*Viscount St. Davids at the 152nd Half-Yearly Meeting of the Ottoman Railway from Smyrna to Aidin.*

But why not meet it with "Sentinel-Cammells"?

* * *

NEW LATE TRAIN TO OXFORD

A new evening fast train from Paddington will be available for residents in Oxford from April 2. It will leave Paddington at 11 p.m. and reach Oxford at 12.30 a.m. The train will also call at Slough, 11.28 p.m., Maidenhead, 11.38 p.m., and Reading, 11.56 p.m. Cheap day and cheap evening tickets to London will be available for return by this train.

Following are the reflections of *The Times* upon this innovation:—

Night Life for Dons

. . . It is to the noctivagous don that the Great Western Railway Company, from Monday next, offers the opportunity of an occasional evening of Metropolitan relaxation, without departing from the traditional regimen that keeps him as healthy, and will render him as wealthy, as by virtue of his station he cannot fail to be wise. Rumour says that the emendation of the text of Bradshaw was urged upon the directors of the line by a famous scholar, who is now the Head of a House. This deliberate courting of the railway's attention was not always the custom of high academic dignitaries in either of their principal strongholds. The first proposal to open a railway station at Cambridge is said to have drawn from the Reverend the Vice-Chancellor a letter of protest, in which he assured the company that the project was as displeasing to Heaven as it was to himself. Oxford, with a less confident faith but a more worldly wisdom, was content with a Machiavellian compromise. At first the railway was allowed to come no nearer than Didcot; and afterwards, when it had been permitted to reach Oxford, the company agreed that no train should run that would enable junior members of the University, bound as they are to be within college walls when midnight strikes, to incur the temptations of the capital during the hours that authority has decided to be dangerous. And so for many years Oxford deans and proctors reflected complacently on the hosts of jaded adventurers, speeding home from their orgies by the late night trains to Cambridge, while their own charges sat studiously over cocoa and Aristotle, their innocency protected by a gap in the time-table.

Times changed, however; trains grew faster, and dons, if they must not be called fast, hated to be considered slow. They were conscious of hungry souls looking up to them from London, and pined to feed them—with papers read to learned societies, with discourses to institutes of erudite affairs. It was then felt to be absurd that regulations framed to prevent their pupils from attendance on MR. GEORGE ROBEY should operate to deprive earnest students of instruction from themselves. That gap in the time-table, coupled with the marked frequency of nocturnal trains to Cambridge, came to appear in a new light, as Another Injustice to Oxford. . . .

The missionaries of Oxford culture looked again at their ABC and the iron entered into their soul. They were ordered the choice of two trains. The 9.50 would as surely mutilate their perorations as it would deprive them, had they been less ascetic souls, of their final glass of the '78. On the other hand there was the 12.10. But the 12.10 at the best delivers its burden at Oxford station at five minutes to two, which is not a comfortable hour in these days of nine o'clock lectures. Unfortunately, the best by no means always happens. Those discourses to the royal societies are exhausting work, and even great intellects are not always proof against the slumberous rhythm of the wheels. More than one drowsy scholar has been plucked out of that train at Birmingham and respectfully returned to his proper destination by the fatherly conductors of the line. Now if there is one thing more demoralising to the young man watching a performance of *Hamlet* at a London theatre, it is seeing the Senior Tutor, in evening dress, creeping furtively back to college with the milk. And therefore the directors of the Great Western Railway Company, who propose to send a nightly train from Paddington to Oxford at 11 o'clock, have their place in the noble line of the Benefactors of the University and colleges, by whose benefits graduates and undergraduates are there brought up to godliness and the studies of good learning. For let it be observed that this train is of no use save to those lofty senior souls for whom the Metropolis holds no moral peril. It will not reach Oxford till 12.30 a.m. The undergraduate, who is still *in statu Cinderellæ*, cannot use it without dropping the glass slipper that will set the bulldogs on his track.

OVERSEAS RAILWAY AFFAIRS

(*From our special correspondents*)

More holiday makers than ever before in Argentina—Proposed Indian Statutory Railway Authority criticised in the Assembly—New inspection railcar in New Zealand—German railways and the motor industry—New South Wales train cruise

ARGENTINA

Holiday Traffic

If increased tourist and holiday traffic is an indication that better days have arrived, then Argentina can safely say that 1934 has opened most auspiciously, as passenger traffic to the holiday resorts on the different lines was greater than ever before, especially to the seaside resorts on the Buenos Ayres Great Southern Railway and the hill stations in Cordoba, served by the Central Argentine and Cordoba Central. Although as far as holiday making is concerned, there is still a month or more to go, the Great Southern reports having already carried 5,000 passengers more to Mar del Plata, than at this time last year. Passenger traffic to the beautiful lake district in the south has also been given a fillip by the improvement in the transport service and due to the fact that the B.A.G.S. Railway, on behalf of the State Railways, is rapidly bringing the shores of Lake Nahuel Huapi nearer, by the completion of the line to Bariloche. In fact all Argentine railway authorities are doing everything in their power to cater for holiday traffic and encourage that holiday spirit which is growing by leaps and bounds amongst the Argentines.

Temporary Transport over the Andes

Difficulty is being experienced by the Argentine Transandine Railway authorities in the provision of adequate funds for the very extensive repairs required to re-establish communications with Chile. Though the gap is at present bridged by road motor transport, and a satisfactory service is being maintained across the Andes, it is not without discomfort. In the meantime the Chileans are showing impatience and the Minister of Foreign Affairs of that country has instructed the Ambassador in Argentina to discuss with the Argentine Government joint measures to be taken to hasten the restoration of the Transandine Railway services, in accordance with Article 5 of the Treaty of Commerce between the two Republics, which has reference to that railway. It is stated that the tone of the proposals which the Chilean Ambassador will put forward is that the Chilean Transandine trains be allowed to enter Argentine territory as far as Punta de Vacas, up to which station the line is in good condition, so as to curtail the length of the motor journey.

New Buenos Aires Underground Construction

The members of the Buenos Aires Branch of the Institution of Civil Engineers recently visited the construction works of the new Constitucion-Retiro subway, which will connect the terminus of the Buenos Ayres Great Southern Railway at the former point with those of the Central Argentine, B.A. & Pacific Railway and Cordoba Central. The work is being carried out by the C.H.A.D.O.P.Y.F., which, being interpreted, stands for the Hispano-Argentine Public Works and Development Company. Considerable progress has been made during the comparatively short time since it was begun. After leaving Plaza Constitucion, the average depth below ground level is 14 metres and at the Avenida de Mayo, the subway runs underneath the Anglo-Argentine subway, but above the tunnel of the Buenos Ayres Western Railway.

INDIA

Railway Budget Debate

The Railway Budget was passed by the Legislative Assembly after a five days' discussion, four of which were devoted to particular issues raised on the demand for grants. Over 180 motions for nominal reduction of grants were tabled, but the vast majority of these could not be moved in the four days allotted for discussion. Important matters discussed included the proposal for the establishment of a Statutory Railway Authority, passenger amenities and road-rail competition.

Statutory Railway Authority

The proposals made by the committee that examined the question of the future administration of Indian railways in London were discussed at length. Many members attacked the London committee's scheme as subversive to the authority of the Indian Legislature. Others pointed out that the Legislature had the power to turn out the Minister in charge of railways if he failed to consider the recommendations of the Federal Assembly on matters of policy and at least it had this advantage over the present system which provided only for the tabling of motions that could not be discussed for want of time. It was also suggested that the Statutory Authority should be set up by an Act of the Indian Legislature and not by the intervention of the British Parliament. The Railway Member promised to convey to His Majesty's Government a report on the debate. The appointment of the London committee was, he said, intended to arrive at the maximum measure of agreement on this important question. The Government of India would stand by the main outlines of their proposals but would give the most careful consideration to the views expressed in the present debate. The discussion was concluded with a statement from the Chair that the motion was introduced to record the opinion of its sponsors that the Constitution Act should merely contain a clause requiring the establishment of a Statutory Railway Authority, the constitution, functions and powers of which should be subject to legislation, initial as well as amending, in the Central Legislature in India.

Amenities for Passengers

The amenities demanded were, as usual, mainly for the lower class passengers, among them being the provision of fans in third- and intermediate-class carriages. It was also urged that more and better salesmen were required for the railways, the existing methods for attracting customers being inadequate. The Railway Member pleaded that the present system, which was inherited from olden days, could not be changed in a year or two, and that the Railway Board had effected improvements in the conditions of travel year by year. After a comparison of railway fares in India and in several other countries, he stated that the Government of India had to decide between the conflicting claims for lower third-class fares and the provision of extra amenities.

Road-Rail Competition

The European group in the Assembly led the discussion on the road-rail controversy. It protested that neither the Central nor the Provincial Governments had taken any steps to follow up the recommendations of the Rail-Road Conference of last year for effecting co-ordination of road and rail transport. Road development in co-ordination with the railways should be speedily taken in hand. The Railway Member remarked that the Railway Board's policy was to increase the efficiency of the railways and their public utility with a view to enabling them to face the competition.

It is noteworthy in this connection that many Bombay members were indifferent to the proposed railway connection between Bombay and Sind, which, the Railway Member said, is

still under examination. In view of the approaching establishment of air services, Sir Leslie Hudson was of opinion that the Sind-Bombay railway project might now be dropped. It is also feared that this railway link may result in further diversion of trade from Bombay to the Kathiawar ports.

New Railway Projects

An interpellation in the Council of State elicited the information that the project for the construction of a railway line from Kashipur to Kalagarh via Thakurdwara in the United Provinces was being re-examined by the Railway Board with a view to ascertaining whether it was likely to prove remunerative. The re-examination was necessitated by road motor competition. It is understood that the Bhavnagar State authorities have under consideration a proposal to construct a narrow gauge railway from Talaja to Mahuva.

Railway Survey by Air

A survey of about 400 miles was recently made by air in two days by Mr. Stubbs, who is investigating the question of transport facilities in the Sukkur Barrage area in Sind. With him were associated the Manager and the Chief Engineer of the Jodhpur Railway, who were interested in the possibilities of extending the branch lines of that company to serve the local requirements. The survey, which was not the first air railway reconnaissance in the Sind area, was carried out in an aeroplane requisitioned from the Jodhpur Flying Club.

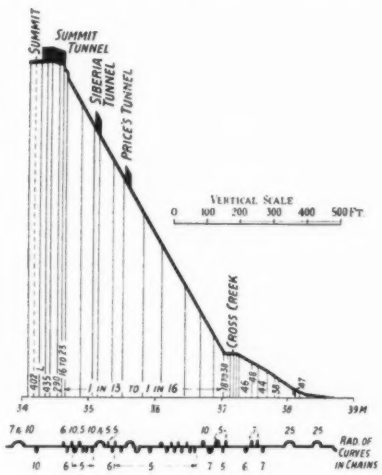
NEW ZEALAND

Inspection by Railcar

In New Zealand the large number of dead-end branches makes effective inspection from headquarters a slow and tedious process in ordinary circumstances. For this reason the General Manager (Mr. G. H. Mackley) has just put on the track a special rail-motor inspection car, illustrated on page 586. The vehicle seats 7 passengers and the driver, and consists of a Leyland Cub KG.3 goods chassis with steering removed, on which a body was built in the railway workshops, the wheels of the chassis being adapted for running on the railway track and axles shortened to suit the 3 ft. 6 in. gauge.

The car is economical in operation, the fuel consumption being only about 14 miles to the gallon. In an interview, Mr. Mackley said he was particularly interested in the car because of the facility and economy with which it would enable him to see and judge for himself the standard of service maintained at the numerous stations throughout the system, and to assess the general efficiency of the staff. The freedom of access which an inspection conducted by means of a car of this description would give to the staff for getting into direct contact with the management should also be beneficial. Opportunity would be taken by himself in the course of his general inspection of the lines to explain personally the policy of the board and the management on questions of outstanding importance to effective railway operation, such as the development of public goodwill and methods for securing all the business possible for the Department.

He subsequently tested the railcar over the Rimutakas mountain range route, where the gradient varies from



Gradient profile, Cross Creek to Summit

1 in 14 to 1 in 12 and where there are five-chain curves. A gradient profile of this section of line is reproduced above. The Cub completed the trip in 40 minutes under the scheduled time for service trains. At the conclusion of the test the General Manager expressed his satisfaction. The car will be available for hire for special trips at such times as it is not required for inspection or emergency railway purposes.

GERMANY

Co-operation between Science and Railways

As in the last four years, a meeting was held from March 5-10, at which railway officers conferred with professors of the German universities and technical high schools to ensure the maintenance of close co-operation between science and railway practice. Apart from some lectures on political developments and their bearing on the position of the staff and the social management of this undertaking with its 650,000 employees, one of the main problems dealt with was the use of the internal combustion engine upon the railways, as, for instance, the putting into service of railcars, buses, and lorries. The close relationship of the railways and the new arterial motor road undertaking (Reichsautobahnen) was also discussed. The members of the conference, with visiting representatives of the Greek and Hungarian railways, were shown round the modern workshops at Brandenburg West and conducted to East Prussia in order to study the special transport conditions arising out of the isolation of this German province by the Polish Corridor.

International Motor Show

A new feature of the 1934 International Motor Show in Berlin was the co-operation between the motor industry and the State Railway Company. Due to its advantages in door to door service, motor transport is bound to play an increasing part in traffic organisation in Germany, and the railway company has therefore started to link up road transport with its rail services. For this purpose the administration ordered 1,140 lorries last autumn and more recently another 720, as well as some special vehicles, including a 5-ton Henschel steam lorry fitted with a Doble high-pressure steam generator with an output of 110-120 h.p. and a 5-ton Büssing Nag lorry fitted with a charcoal gas generator of 110 h.p.

Up to now 30 million marks have been spent on these orders, which have been distributed among nine German motor firms, such as Daimler Benz, Krupp, Vomag and Magirus. At the same time 19 railway repair shops and 34 local sheds for small repairs are to take over the overhaul and the repairs of this stock. Some 230 garages are being established and in 17 schools the drivers for this fleet will be trained.

The 30-cwt., 3-ton and 5-ton lorries are equipped with motors of 60-110 h.p. The 30-cwt. and some of the 3-ton lorries are six-wheelers, "geländegängig," making them suitable for rough cart tracks or even cross-country work, as, for instance, in the construction of the new "Reichsautobahnen" (arterial motor roads). Specimens of these lorries and of various kinds of containers—some 8,000 small containers are already in use—and 18 different types of petrol and diesel motors for lorries, tractors, and railcars are shown by the State Railway Company at the exhibition.

NEW SOUTH WALES

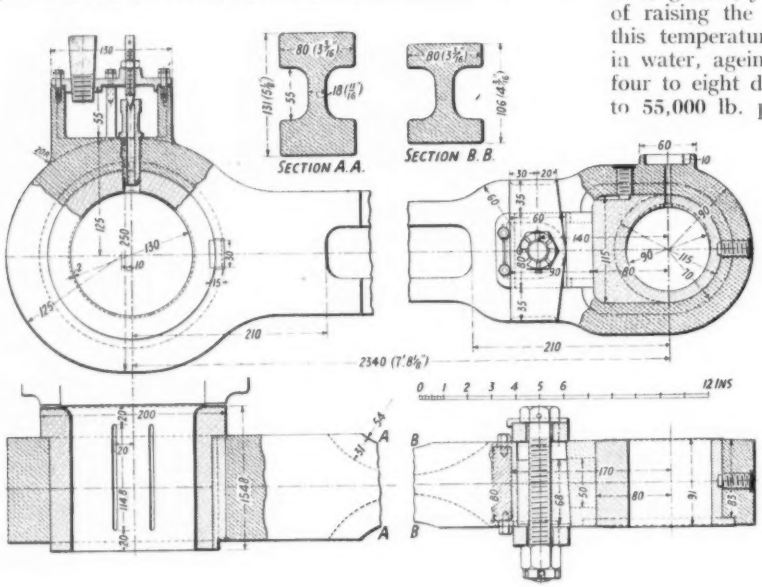
An Easter Train Cruise

A special train, composed of convertible sleeping cars, was booked to leave Sydney at 8 o'clock on the night of Thursday, March 29, for a short cruise in the Griffith and Leeton irrigation areas, to the Burrinjuck dam and to the capital city of Canberra. Day excursions in the form of motor tours were planned, as well as entertainments by the local residents. Catering arrangements were made at railway refreshment rooms and hotels, and the train was booked to return to Sydney early on Tuesday, April 3. This four-days' cruise covers 950 miles by rail and 200 miles by motor car, some of the finest agricultural and pastoral lands of the State being traversed. The all-in fare for the tour was £9 9s.

DURALUMIN CONNECTING RODS

New material saves weight in French application

IN October, 1930, M. Duchatel, the Engineer-in-Chief of Material and Traction of the Eastern Railway of France, decided to give a trial to duralumin as a substitute for steel for connecting rods, and to that end fitted a set of rods to one of the Prairie (2-6-2) tank engines working on suburban services. These locomotives have two outside cylinders 21 in. dia. by 26 in. stroke, with a piston thrust of 64,000 lb., and the duralumin rods were designed to take the place of steel rods without any modifications to the crank-pins or other extraneous details.



A consideration of the detailed drawing presented herewith shows that the webs of the rod are of appreciably greater section than is found in a modern alloy steel unit of similar length and with a similar piston load, and that although the rod is not long, ample width is provided to prevent deflection in the horizontal plane. But due to the lower specific gravity of the material, the rod is 25 to 30 per cent. lighter than an alloy steel rod designed for the same duty.

Several proposals to use duralumin rods on various railways have had to be turned down on account of the required width of the rod, especially with centre to centre lengths in excess of 9 ft. or so, but no such trouble was experienced with the relatively short rods of the Est Prairie tanks. But the moments of inertia of 21·15 and 6·59 in the vertical and horizontal directions respectively are a good deal higher than are found in an average steel rod of similar overall proportions, due, of course, to the lower stress allowed with duralumin.

Big ends of the solid unadjustable type are employed, and the bush is of the railway company's standard bronze, with a white-metal lining 2 mm. thick which extends over the whole bearing, and, with a thickness of 1 mm., over the end thrust surfaces also. The bush is prevented from turning by a steel key. The small end is of the adjustable pattern, with a plain bronze bearing.

Forged duralumin of the type used for connecting rods may have widely different strength characteristics according to the heat treatment to which it is subjected. An aluminium content of not less than 92 per cent. is usually specified, and varies between that figure and 94 per cent., with 4 per cent. of copper and 0·5 per cent. each of manganese and magnesium. Normalising is effected by heating to 800 deg. F., and, after several hours at this temperature, gradually cooling. Further heat treatment consists of raising the temperature to 950 deg. F., maintaining this temperature for half-an-hour, and, after quenching in water, ageing in a normal atmosphere for a period of four to eight days. The ultimate strength is then 50,000 to 55,000 lb. per sq. in., the yield point approximately 30,000 lb. per sq. in., and the Brinell hardness number 95. A maximum stress of 10,000 to 11,000 lb. per sq. in. is allowed in high-speed oil engines, but the stresses found in the Est locomotive rods are a good deal below this figure. They are given in detail in the accompanying table, and it will be seen that the stresses are about 20 per cent. lower than those found in alloy steel rods, except the inertia stress, which is 35 to 50 per cent. lower. In getting out the values in the table, the Merriman formulæ have been used when considering the rod as a column.

After running 41,000 miles, the Est locomotive with the duralumin rods was, in October, 1932, involved in an accident, and was taken out of service. The rods were sent for repair and renormalising, but the works to which they were sent for treatment did not appear to notice that the blows which one of the rods had received in the accident had caused fissures to appear in the inside angles of the small end, and for this reason the rods have not yet been replaced in service. Until the accident the rods had given no trouble.

Particulars of Duralumin Connecting Rods, 2-6-2T Locomotive, Eastern of France Railway

Material		Duralumin
C.S.A. at centre of rod	sq. in.	9·497
,, small end	,,	7·946
Moment of inertia about horizontal axis		21·15
Radius of gyration about horizontal axis	Kv.	1·493
Moment of inertia about vertical axis		6·59
Radius of gyration about vertical axis	Kh.	0·833
Section modulus about horizontal axis		9·07
,, ,, vertical axis		4·188
Weight of rod = average C.S.A. × L × 0·102	lb.	95·0
Length of rod, centre to centre, L	in.	92·1
Unit stress at centre	lb. per sq. in.	6,745
,, ,, small end	,, ,,	8,055
,, ,, centre at wheel-diam. speed	,, ,,	2,245
Ratio L/Kv.		61·7
,, L/Kh.		110·7
Vertical stress (Merriman)	lb. per sq. in.	7,400
Horizontal stress (Merriman)	,, ,,	7,220
Load to cause buckling, vertical plane	,, ,,	22,000
,, ,, horizontal plane	,, ,,	22,800
Factor of safety, vertical plane	,, ,,	2·98
,, ,, horizontal plane	,, ,,	3·16
Inertia stress at wheel-diameter speed	,, ,,	2,520
Vertical stress at wheel-diameter speed	,, ,,	2,300
Combined vertical and inertia stress	,, ,,	4,820
Piston load	lb.	64,000

IMPROVING RAILWAY LIGHTING

ALTHOUGH the lighter months of the year now approaching are somewhat inconvenient for making tests upon illumination equipment, they afford the best period for reviewing the operating results during the winter just gone, and for thoroughly overhauling units which could not be spared from service before. When lamps are taken down for a good spring-cleaning and a new coat of paint, the question should be asked whether the units dismounted have been fulfilling their purpose as well as they might have done, and the possibility should be considered of making replacements with more up-to-date fittings. Some of the older kinds are wasteful of light, scattering it in directions where it serves no useful purpose, while others give rise to the evil of glare.

It is fairly common at this time of the year to discover that a fitting is lamentably dirty, and bearing every sign of having come through a long period of inattention. As it is possible to lose from 30 to 50 per cent., and even more, of the lighting energy emitted if there are thin films of dirt on reflecting and transmitting surfaces, every effort should be made to arrange for the proper maintenance during the next winter of any units showing signs of past neglect. Alternatively, lamps requiring practically no maintenance (if such are to be found) should be erected in their place. The effect of dirt upon the efficiency of lighting units is more pronounced when it settles on the luminous bulb itself, or on a reflector dealing with over 50 per cent. of the emitted light, than when it settles on a front cover glass, and consequently it is usually an advantage to have the protection of such a glass. Especially is this so in very dirty situations where the unprotected unit may prove relatively troublesome and costly to keep in an efficient working condition.

Common Faults of Lighting

The defects of past winter's lighting arrangements, if they have not made themselves felt prior to the spring, may be sought during the few dark evenings remaining. Easily the commonest and most objectionable fault is the presence of glare. Any bright point of light coming into the line of vision causes the pupil of the eye to contract, and leads to the diminution in brilliancy of the retinal image of other objects. Users of the plate camera, with its focussing screen and iris diaphragm, will not need further elucidation on this point, but to most people the following little experiment will be of interest. A hole is cut in a white card on which reading matter is clearly printed, and this card is held up with light coming from behind. A powerful clear glass lamp is placed in front of the observer so as to be visible through the hole in the card. When this lamp is dark the matter on the card is easily read, but when it is switched on nothing can be seen except the one bright point of light. This experiment shows that no ordinary illumination can be of any use in the presence of glare. At one time it was not unusual to open a railway carriage door, and be unable to see where one was placing one's foot on account of glare from the platform lights. To-day carefully designed hoods are used on many stations to prevent the direct rays of the lamps from striking carriage sides higher than the door handles. But glare is liable to arise in yards, depôts, and workshops, where the lighting problems are all different and often difficult of entirely satisfactory solution. Rather similar to glare in its optical effects is powerful contrast. Everyone realises the danger of moving from a brightly lighted room on to a relatively dim stairway, and it should not be necessary to point out that individuals whose duties take them from place to place in a yard or works should be spared the dangers produced by strong lighting contrasts. Conditions of a dangerous kind are sometimes caused by large shadows, and it is not only desirable to inspect yards and other places for existing shadows, but advisable to anticipate fresh possibilities. Where wagons and locomotives are present the conditions are extremely variable.

The Lighting of Running Machinery

In places where fine work is being done good lighting minimises the risk of eye-strain and is usually present, but, where running machinery has to be attended, good lighting is important for another reason not so widely appreciated. The illustration accompanying this article depicts a simple experiment which will be of particular interest to those in charge of machine shops or stationary power plant. The experiment is performed with a small top in conjunction with an auxiliary light whose rays can be caused to shine brightly upon it. The top is so steadied that it will run without wobbling right down to a state of rest. It is watched under the bright light until the black lines on its white upper surface are clearly distinguishable, and then the rays of the auxiliary lamp are intercepted, preferably by switching off. If, under the light which remains and which is being tested, the top appears to continue slowing down, the lighting may be judged adequate. If, on the other hand, the light is too weak the top will appear to accelerate at the instant of switching off. This experiment shows that all movements appear faster when viewed in a feeble light than when properly perceived in a good light. The practical implications are obvious. A man who tends a running machine will want to reduce its speed at night if the light is inadequate, since its movements will seem too rapid to be kept under proper observation. Conversely there will be a greater risk of accident, or of work being bungled, if the machine be kept running at normal speed under feeble lighting.

The top illustrated, together with other simple appliances for testing lights, can be obtained, compactly housed in a foolscap-size envelope, from Benjamin Electric Limited, who will send it free of charge to anyone interested. Many Benjamin fittings, including the well-known Duoflux and Rodalux reflectors, have long been in railway service, and some of their applications have already been described in these pages. A new product of this company, of interest to those engaged on light testing, is a pocket photometer measuring $4\frac{5}{8}$ in. by $2\frac{5}{8}$ in. by $1\frac{5}{16}$ in., weighing only 10 oz. and giving a dial reading the instant it is placed in the test position. The scale is directly calibrated up to 50 ft candles, and, as the action is secured by a photo cell generating its own e.m.f., no battery is necessary, nor are any adjustments dependent on human judgment called for. A competent observer can obtain more accurate results with the normal type of photometer, but for the purposes of comparison the new photometer is ideal.

DEMONSTRATION OF A NEW FIRE-PROOFING COMPOSITION

A simply applied and economical composition for protection from fire

WE recently witnessed a series of remarkable demonstrations of a new British product known as the improved Porcella fire-proofing composition, and what we saw and describe below seemed to justify its designation.

Porcella, which is made by Porcella Products Limited, of Chase Road, Harlesden, London N.W.10, is a water bound composition, which when applied to a material such as wood, pulp board, metal or any other rigid substance, with a brush or spray, like a paint, forms a film over it such that it excludes air from the material it covers by clinging firmly to it and by resisting disintegration, even under heat and other conditions far more exacting than would prevail in any ordinary outbreak of fire. For, though it blisters under the action of intense heat, the blisters formed do not break, but continue to protect the substance below them.

Smoke Prevention

Particularly where wood is concerned smoke is one of the chief difficulties in fire fighting, and it is therefore significant that the use of Porcella prevents the emission of smoke from any surface it covers, a fact which is borne out by the photographs reproduced. Porcella is a dark grey composition which dries with a dull mat surface. It is not suitable for use by itself in places outdoors exposed to the elements, but any coloured ordinary oil paint, enamel, varnish, cellulose or water paint or distemper can be applied over it, provided the first coat over the Porcella has the minimum amount of oil and will become hard when dry. The usual type of cementing or stopping coat can be used. Actually one coat of Porcella is effective, but two are much more so, and insure complete protection, the outer coat blistering and protecting the inner, which in turn keeps all heat from the substance upon which it is laid. Incidentally, Porcella either as a liquid or a vapour, is non-inflammable and is harmless to anyone applying it, and it gives off no unpleasant or obnoxious odour. On the other hand, it is definitely anti-corrosive and non-injurious to metals and a preservative of timber.

The first tests we saw consisted of the filling of three dealwood boxes with paper and firewood over which paraffin was poured freely and setting them alight. As was subsequently demonstrated, petrol could have been substituted for the paraffin, but its effects are dissipated more quickly and the test is therefore not so severe. The first box was untreated, the second coated inside and out with two coats of Porcella, and the third was painted all over with a mixture of Porcella and a lighter coloured pigment giving it a more pleasing appearance, but not providing so effective a resistance to heat. Our illustrations depict tests on boxes similar to the first two just described, and the different effects are evident from the three photos. The complete lack of smoke from the left-hand (Porcella treated) box is very noticeable, as is also its almost undamaged condition after the fires had burnt themselves—and the untreated box—out.

Actually we timed the fires in the three tests we saw, and they burnt for about 12 minutes, and when the two treated boxes were sawn through, it was seen that, though blistered, the coating was intact, and the wood beneath it was charred in the case of the box with two coats of unadulterated composition to a depth of perhaps $\frac{1}{32}$ in., and in the case of the Porcella-cum-colouring mixture about $\frac{1}{16}$ in. of the wood was charred. When the fire was at its height it was possible to rest one's hand on the top of the Porcella-coated box and to touch the mixture covered one. The untreated box was reduced to charcoal.

The next test was the application of a blow lamp flame to a sheet of zinc coated with two coats of Porcella. The zinc behind the composition quickly melted, leaving a hole with the still intact film of Porcella stretched over it like a drum, though the outer coat was, of course, blistered. A sheet of pulp-board, the layers of which were cemented with bituminous adhesive, was then tested, its surface being coated with two coats of Porcella. Except for the slight melting of the adhesive, it was unharmed, though the latter ignited immediately the blow-lamp was directed upon them unprotected with the composition. A similar test with seven-ply caused the first ply only to char. Sundela was also unscathed, though a very powerful blow-lamp played upon its Porcella coated surface for a considerable period. Patent wall-board covered with a new paint—resembling an enamel—Scolite, was next subjected to the intense heat of the large blow-lamp. The Scolite did not burn, but peeled off and, as on the other materials, the Porcella effectively prevented damage to the wall-board for a lengthy period. Subsequently plywood coated first with Porcella and then with cellulose paint was similarly tested. The cellulose immediately and violently burst into flame and went out again, but the Porcella protected the plywood from all but slight superficial charring.

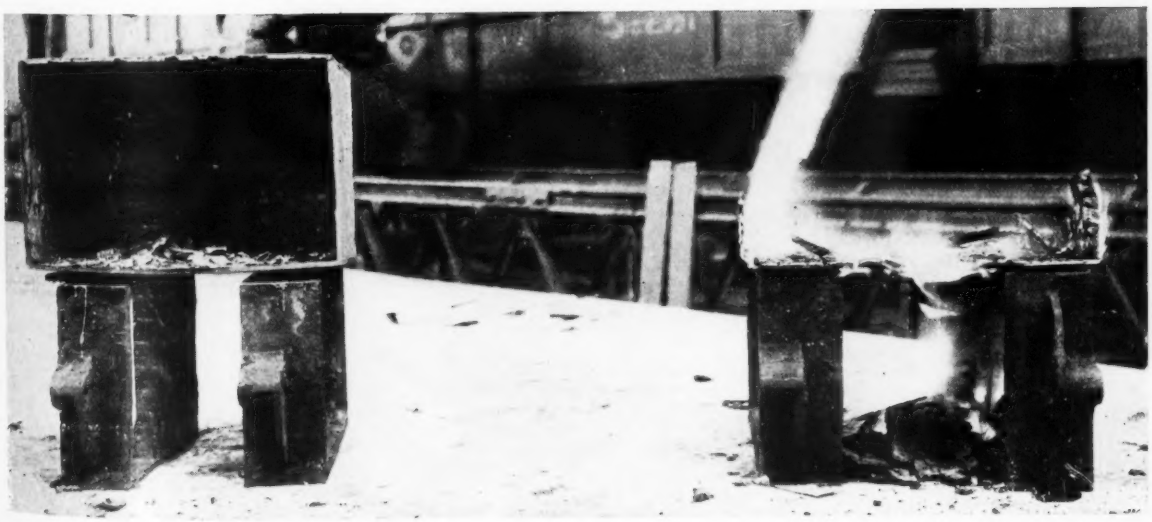
Finally a piece of plain plywood was painted with the composition and without waiting for it to dry, the blow-lamp was applied, with as little effect as in all the preceding tests. The results with the composition on all these materials were therefore uniformly satisfactory and convincing, and only with the most powerful blow-lamp concentrated on the same spot for a very considerable period did even local ignition of the material occur, and then it was prevented by the Porcella from spreading at all beyond that spot, and this occurred only under conditions so severe that they would never occur in practice.

Possible Railway Uses of the Composition

At the moment, railways in India, South Africa, Portugal, Argentina and Brazil have been supplied with Porcella and, when it is realised that this preparation is obtainable at about the cost of a good paint, it would seem that all kinds of railway buildings and coaching stock—for which plywood construction appears to be on the increase—could economically be treated with it as a form of insurance against fire risk. Petrol-driven vehicles, road and rail, might with advantage have a couple of coats of Porcella upon any inflammable parts. For steamships, too, its application is suggested, and it has already been applied to the passenger accommodation of the *Queen of Bermuda* and other vessels, including, we understand, certain new railway-owned steamers. On test a typical sample of plywood bulkhead has, it is reported, been subjected to a 50-minute test, during the first 30 of which the temperature was raised to the unprecedented figure of 1,650 deg. F., and maintained for the remaining 20 minutes, yet the further side of the bulkhead from this application of heat had not collapsed. There would thus seem to be many spheres in which Porcella should be useful to railway administrations.

Before ignition

Two minutes after ignition



Fifteen minutes after ignition

In each of the above illustrations the Porcella-coated box is on the left

DEMONSTRATION OF PORCELLA FIRE-PROOFING COMPOSITION

(See article on opposite page)

REPAIRS TO WHITEHAVEN TUNNEL, L.M.S.R.

The lining of this historically interesting tunnel has weathered severely in the course of its eighty-year life, and is now being renewed and reshaped

THE Department of the Chief Civil Engineer, Mr. W. K. Wallace, London Midland & Scottish Railway, has in hand a protracted work in the repairs to Whitehaven tunnel, which is 1,320 yd. in length. This work is of more than ordinary interest as it includes the employment of miners as well as much reshaping of the tunnel profile.

The town and port of Whitehaven were originally served by two independent railways, the Whitehaven Junction Railway at its northern end, running northwards to join the Maryport & Carlisle Railway at Maryport, and the Whitehaven & Furness Junction Railway at the south end going in a southerly direction to connect with the Furness Railway at Foxfield. For some time the town of Whitehaven formed a physical obstruction to a junction being effected between these two railways, but in 1846 the Whitehaven & Furness Junction sought and obtained powers to extend its line to connect up with the Whitehaven Junction Railway. In the Act the railway was debarred from substituting open cuttings for tunnelling on the lengths of line traversing, or rather passing under Whitehaven Castle grounds and other lands owned by the Earl of Lonsdale between certain points, without consent in writing. Hence the length of tunnelling required.

Left: Miners removing crown. Centre: General view of tunnel. Note difference in shape and alignment of new and old linings in both these illustrations. Right: Side walling being removed, showing rail centres and laggings wedged behind them

Method of Repair

The tunnel was lined with the local red sandstone and with brick, and it can be readily understood that after the lapse of over eighty years portions of the lining have perished, owing to the combined effects of weather and the blast and fumes from engines. This perished lining is now being repaired. In some places only the side walls require repairing, a relatively simple matter, but in others the side walls and arch are having to be cut out and replaced. The work cannot be carried out while traffic is passing through the tunnel, and the only hours available are from midnight to 4.30 a.m. Centres have been made from old rails to the profile of the tunnel, and are erected inside the lining, resting on horizontal rails supported by longitudinal timbers at the foot of the side walls. Laggings are inserted between the centres and the lining of the tunnel and tightly wedged. The length of arch removed and rebuilt at one time is 8 ft., though centring is, of course, also erected and lagged on each side of the portion to be cut out. Centres are provided for three separate working places.

Progressive Operations

The first operation is for a small gang of miners to remove the crown of the arch. This takes three weeks; they then proceed to another working place and are followed by a larger gang of miners who strip the tunnel lining from the crown to the foundations, this again taking three weeks. The rock and shale behind the lining is very carefully supported on the centring as the lining is removed. This gang is followed by the bricklaying gang, who reline with bricks the portions removed, this operation also taking three weeks. It will thus be seen that at the end of each three weeks, a length of 8 ft. of tunnel has been relined, and no gang is delayed by the other gangs. A spare set of centring is provided, as it is not possible to strike the centres immediately the arch has been turned. The rail centres also have to be moved forward every three weeks and this is usually carried out on a Sunday.

The original profile of the tunnel was not regular, nor did each length always join up accurately as completed. Opportunity is now being taken to correct these errors. A start was made in the middle of 1932 and it is anticipated that the works already sanctioned will be completed in 1936.

NEW TRAIN INDICATOR AT PADDINGTON, G.W.R.

An entirely new type of train arrival indicator, electrically operated, adds to the public convenience at the London terminus of the Great Western Railway

(*See illustrations on pages* 580 *and* 581)

A NEW type of electrical train indicator was brought into use at Paddington on March 27, the first of its kind in the world. The actual indicator is located in the centre of the "Lawn" circulating area and consists essentially of a handsome polished teak frame, with eight panels facing in the arrival direction. In each of these can be shown the arrival time of a train, the number of the platform at which it will be received, whether it is running late and if so, how late and the principal stations it has served. On the reverse side is displayed a list of departures, and a clock with teak-wood dials in keeping with the frame, faces in each direction. All necessary information regarding movements of trains is thus available at one central spot.

The novel feature of this new indicator is that the setting up of the composition of the trains—*i.e.*, the list of principal stations served—is performed automatically by a magazine which stores all the necessary information for each train until it is required, it then being only necessary for the control operator to press keys corresponding to the number of the train required to be displayed. When a given number is keyed up by the operator, the mechanism automatically calls on the magazine for information regarding the composition of that train, and causes these particulars to be displayed on one of the panels of the indicator. At the same time, in order that the operator shall always be fully aware as to what is being displayed on the indicator (which is not visible to her), a miniature panel is provided in the control office which keeps before her notice information similar to that displayed by the indicator.

Normal Procedure

The normal procedure in setting up a train is as follows: At the appropriate time—say 20 minutes before the train is due to arrive—the operator will key up, for example, train No. 16, this being the 11.52 from Penzance, Truro, Plymouth and Exeter. The assigner will then step to train No. 16 and transmit the signal via the appropriate connections in the magazine to the indicator control switches. Simultaneously a signal is extended, also via the magazine and the panel control relay to the first free indicator panel in the appropriate group, which is thereby set in motion, the whole operation being a matter of only a few seconds. As each change of display takes place, a signal is returned from the indicator to the control switches, which step accordingly and search for the signals extended from the magazine. The latter having been found, the indicator control relays operate and extend a signal back to the control keys which release. Signals are also extended from the control switches to the operator's display board to display the train number on the selected panel. When it is known which platform will be used for the train and how late it is running, the operator can signal the platform number and minutes late to the indicator in a similar way. Simple means are provided for clearing down the indicators after the arrival of the trains.

Out-of-Course Operation

In the case of fog or special trains, the magazine feature can be eliminated and a system of manually operated remote control used instead. By the latter means any possible combination of station names can be used to set up a train. The operation when setting up special trains, platform numbers, &c., or when blacking out, is similar to the above, with the exception that the signals are transmitted directly to the control switches without passing through the assigner and magazine. Should it be necessary to change the time or composition of a train, this may be done in a few seconds. Switches are provided for each day of the week in order to ensure that the operator may not inadvertently set up, for example, a "Saturdays only" train on some other day.

The Flexibility of the System

The principle upon which the system is designed gives extreme flexibility. For example, when used for a departure indicator it can be arranged to store a complete schedule of departures and may be clock controlled. That is to say, the indications regarding normal schedule trains may be indicated automatically at their appropriate times without any manual intervention whatever, it being necessary only to connect to the electric clock system. When an indicated train leaves the platform the display regarding that train is automatically withdrawn.

While the installation at Paddington is the first of its kind, the new system has already created considerable interest among railway companies generally and considerable extensions of the system are anticipated. The Paddington system has been supplied to the order of the Great Western Railway by the Siemens and General Electric Railway Signal Co. Ltd., and has been designed and manufactured by its associated company, Siemens Bros. & Co. Ltd., of Woolwich, who hold the patent rights in this country and abroad.

The Inauguration

The inaugural ceremony took place at noon on March 27 and was followed by an informal luncheon over which Mr. K. W. C. Grand, Commercial Assistant to the Superintendent of the Line, presided. Among those present were:—

Messrs. F. L. Castle, S. D. White, E. A. Laidlaw, E. A. Petithory, J. H. Broome, T. Austin, E. L. Williams and A. A. Southam, of the two Siemens firms, Major Dewar and Messrs. C. T. Cox and J. R. C. Williams, of the railway, and representatives of the press.

Mr. Grand welcomed the guests on behalf of the Great Western Railway and thanked the Siemens and General Electric Railway Signal Co. Ltd. and Siemens Bros. & Co. Ltd., of Woolwich, for their co-operation in carrying out the work, also expressing his personal thanks to Mr. F. L. Castle, of the former firm, who had been working at Paddington daily. Thanks to his advice and forethought, it had been possible to bring the indicator into use much earlier than had been expected.

Replying on behalf of his firm, Mr. Castle thanked the Great Western Railway for consistent help on the job, and remarked that this was both a new departure in railway service to the public and a new line of manufacture for industry, which he hoped would extend both at home and overseas. The Paddington indicator was essentially an article of utility, and although it embodied advertisements it did so, he thought, without losing anything from the æsthetic point of view and was therefore not out of place on the famous Paddington "Lawn." In conclusion he drew attention to the fact that the equipment was in design, workmanship and material—including even the wood and the wire—100 per cent. British.

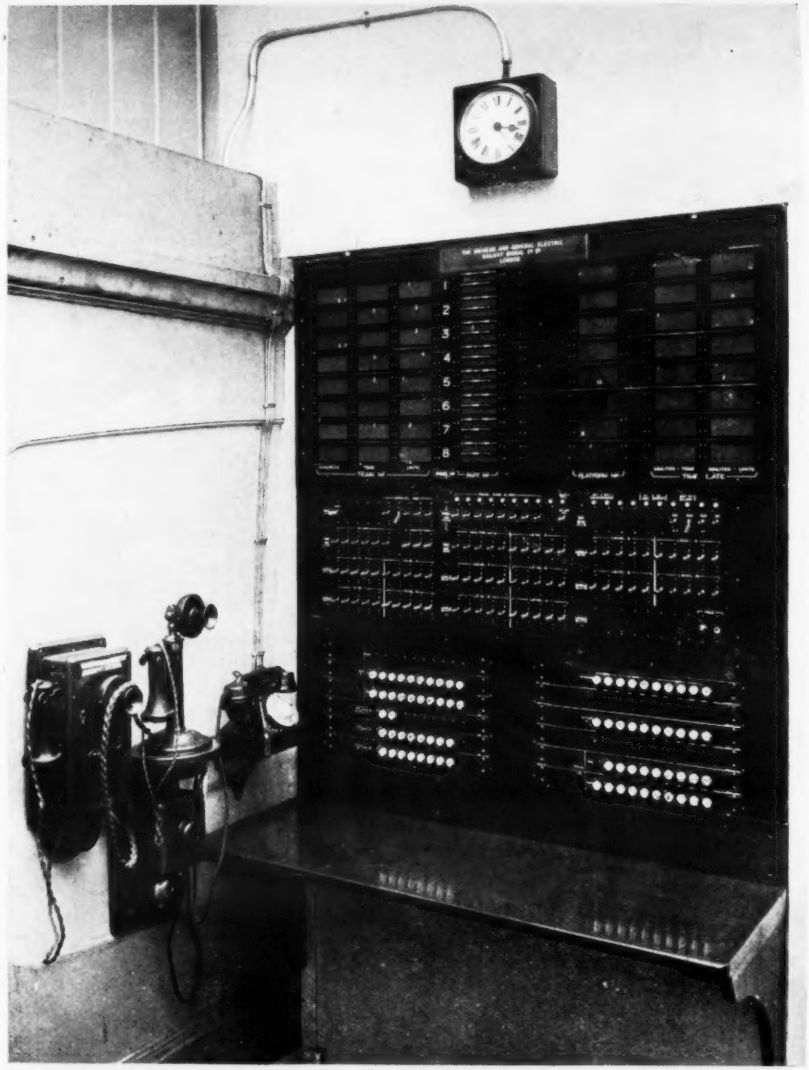
Arrival side of indicator

Departure side of indicator

NEW TRAIN INDICATOR AT PADDINGTON

(*See article on page* 579)

Control equipment room



Operating panel

NEW TRAIN INDICATOR AT PADDINGTON

(*See article on page* 579)

KEEPING ABREAST OF THE TIMES IN THE GOODS DEPARTMENT*

By H. W. PAYNE,
Assistant to the Chief Goods Manager, G.W.R.

Part II

THE unfortunate plight of our basic national industry, coal, too well known to need emphasis here, is reflected in the numerous requests for adjustment of rates, and in spite of the low level of railway finances and rates, material help is given in this and other directions. Recently the Great Western Railway placed at the disposal of the colliery merchants and coal factors 5,000 twenty-ton wagons on very favourable terms.

The problem of privately-owned wagons, with the obligation upon the railways to return individual wagons to individual collieries, has been modified in recent years by the formation of certain voluntary wagon pools. The method of charging for empty haulage not balanced by full journeys has been simplified by an agreement recently concluded with the interests affected that a commuted charge based upon past experience and producing a scale of charges per wagon shall be paid annually according to the wagon holdings of the different firms. This transaction is a rationalisation of empty wagon haulage on a fair estimate of average services and costs, which, having been assessed, will recompense the companies directly and without the harassing and expensive detailed examination of wagon movement without adequate remuneration.

Goods Wagons

For merchandise the open wagon covered with a sheet or tarpaulin, and the covered van of 10- or 12-tons capacity, are the familiar vehicles for the conveyance of goods. Modern equipment of oil axleboxes and vacuum brakes are precedent to the maintenance of fast freight train services and the next morning arrival, an ideal sought and reached by the Great Western Railway for all important traffic and the greater proportion of its traffic as a whole. As a gesture of assistance in the iron and steel industry, fifty 12-ton steel-bodied wagons are included in the current building programme as an experiment. In this country, the 20-ton merchandise wagon sometimes advocated in the press would—as proved by commonplace facts of the quantity factor of consignments—seldom or never be loaded to capacity, as such loads are not available by the incidence of production and distributive requirements. Some two or three years ago 100 such wagons were built, but experience has shown that expectations of their full loading to any extent are not justified. The standard 12-ton wagon is adequate for general merchandise requirements, except for the bigger loads that are available between the larger stations. For exceptional loads, a " crocodile " type of wagon capable of carrying 120 tons and used for conveying electrical stators and transformers, a wagon for conveying excavators, and special adaptations of large units for the carriage of motor car bodies, indicate the range of wagon type provided.

Wagon Supply and Circulation

That wagons are not invariably in the right place at the right moment must be admitted in order to say that they are not long out of place, that supply and circulation keep a number of experienced minds at stretch day by day, it being regarded as a blot on the escutcheon if so obsolete an expression as " short of wagons " should have to be applied at any time. The Department is abreast of the times in its contact with the situation in any part of the line day by day, and while the co-operation of the operating side is relied upon in regard to routine distribution, it is with the advice of the Goods Department that change of circumstances requiring change of flow, special working, or the selection of particular vehicles, is brought about hour by hour.

The maintenance of wagon sheets in a waterproof condition, upon which depends the adequate protection of general merchandise susceptible to damage loaded in open wagons, is the responsibility of the Department. There is always the possibility of a rent or pinhole and of hollow sheeting—a depression in the covering due to the inequality of the load under it—and the danger of accumulation of rainwater in such hollows. Inter-company inspectors examine sheets in representative numbers week by week, to reject the unsuitable and report to a Clearing House Committee the percentage requiring attention. Special wagons, collecting surplus or defective sheets, work along specified routes converging upon the sheet shops, to ensure that the " stitch in time " is applied and the accumulation of unusable sheets at stations avoided.

Freight Trains

The modern goods or freight train is designed to move the maximum number of wagons at a maximum speed. And, although the inroads of competition and the state of business have reduced tonnages, the importance of quick delivery is paramount, and half a load must have the same service as is given a full load. The main trunk express freight trains usually carry, that is in the number of wagons per train, near or up to capacity because of their origin and termination at large centres of business, but the average revenue earning content has, of course, been detrimentally affected. The numerous slower and cross-country trains have suffered in greater degree, having regard to the shorter distance traffic lost to the road. Alterations, re-timing, new services, are put into operation where traffic offers or can be secured, and the seasonal requirements of Cornish broccoli, Channel Islands produce, Evesham fruit, sugar beet, and other goods-rated traffic, receive adequate provision by special schedules.

In goods shed operations, a measure of economy and acceleration of movement has been brought about by the abolition of the long-standing wagon-side check upon goods during unloading, it being borne in mind that another check by the cartage checker who passes the goods from the platform to the road vehicle, is precedent to the release of goods for delivery. Internal office arrangements are facilitated in that the goods invoice now comes direct to the office for the manifold purposes it represents, the document for the check being the delivery sheet prepared in advance at destination, or better still, coming to hand from the sending point as a part of the invoice production by duplication at the time it is prepared by the type machine.

Containers

The expansion over the past five years of the container service, which has for its prime justification the conveyance of the load from the door of the sender to that of the consignee without intermediate station handling of the contents, has proved the value of the invention.

* This article is based on a comprehensive paper recently read by the author before the G.W.R. (London) Lecture and Debating Society.

Types of container now in use include:—Open, covered, insulated, ventilated, grain, furniture, and one with bunkers for the introduction of Drikold, a carbon dioxide refrigerant, the use of which was described in our issue of July 22, 1932.

Registered Transits

Early in 1929, the importance of quick transit and prompt delivery being one of the first charges upon the department, a suggestion was made that an insurance against failure to give satisfaction to the customer forwarding or expecting to receive important traffic might be obtained by special observation over such consignments during the journey. Accordingly the Registered Transit scheme was introduced on the Great Western Railway under which a payment of 2s. 6d. is demanded for the singling out of the consignment and the associated work devoted to its safe and quick passage. Its popularity has exceeded expectations, and it has been adopted by other companies since June, 1933. Some 85,000 consignments have already been carried by the Great Western under this scheme.

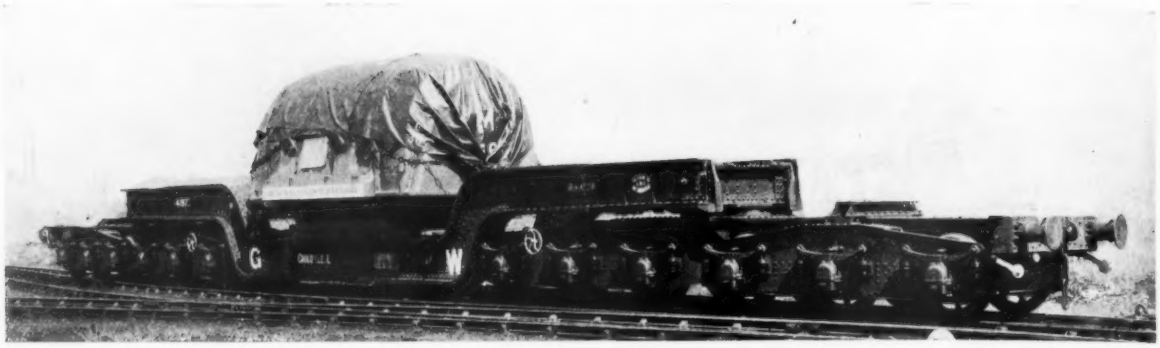
Railway company's household furniture removal container

Country Lorry Services and Railhead Distribution

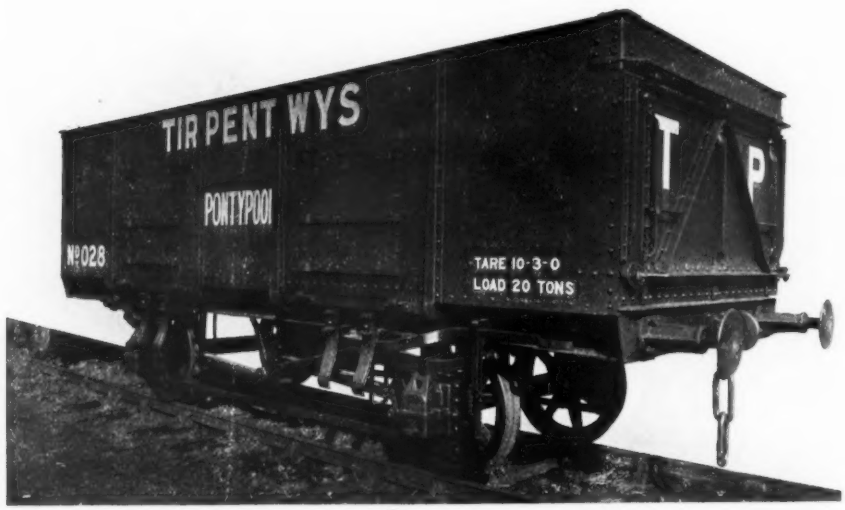
Road cartage developments are also abreast of the times and the railways' road powers of 1928 have enabled them to expand cartage as direct conveyance where this is desirable. Cartage, as the country lorry services and the countryside delivery van as the radial distributor of traffic centred at railheads, also as the means of undertaking special contracts on the road of every description, allowing of lump sum or overall quotations according to circumstances, is a sign that present-day adaptability is a watchword.

The up-to-dateness of outlook in this respect is best

Loading cattle into railway livestock lorry



Seventy-three-ton stator loaded on a special crocodile wagon



Standard twenty-ton coal wagon

Thirty-ton bogie wagon adapted for the transport of motor car bodies

The first of the new exhibition trains

exemplified by the recent acquisition by the railway companies of a financial interest in Carter Paterson & Co. and Pickfords. Co-ordination is the intention, and is implemented by the chairmanship of the two boards of the subsidiary companies being held by the Chief Officers of the G.W.R. and L.M.S.R. respectively. The stability and wide influence of these two firms, now to operate within and without the ordinary territory of railway cartages, are of high value to the community, and when the investigation and re-modelling of the practical and mutual work which the two sides can do has been completed, we shall expect valuable advantages.

Furniture removal is a comparatively modern development, but its appeal to the householder has met with response and patronage which are surprising. The railway has yet to assume the complete role of the furniture remover in the matter of dismantling and packing household articles, it being regarded as impolitic to venture too precipitately into the realm of the expert, and, apart from tentative experiment, agents are employed for that purpose. Containers for the removal are supplied, the goods insured, and full responsibility accepted as to safety and prompt delivery. The old furniture van traffic both loaded and empty had gone to the road, but here the railways are recovering it in more remunerative form.

Exhibition Trains

Something new in the way of practical publicity in this country was brought to notice in the early part of 1933, when a train conveying exhibits of Fry's chocolates and other products of that firm was on exhibition at Paddington station and proceeded to various parts of the line on its advertising way.

Next autumn arrangements are being made for the make-up of a Buy British train, a trade exhibition which will tour the railway systems of the country, halting at convenient points for public inspection. The train will consist of 17 coaches and will leave Birmingham in September, returning there after a circular tour over the southern half of England. This is an active side of the British Industries Fair and it is proposed to repeat the performance in the northern part of England.

(To be continued.)

Interior of the showroom coach

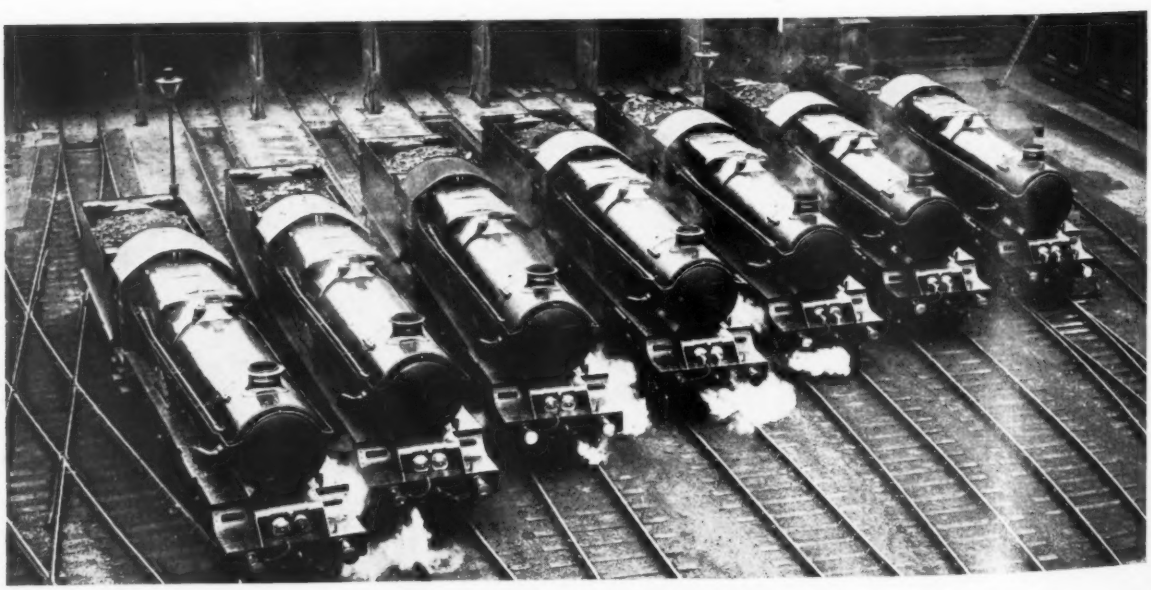
RAILWAY AIR SERVICES.—A statement of its plans for the present year was issued by Railway Air Services Limited, the company formed jointly by Imperial Airways and the principal railways, on March 28. Not more than three routes will be operated this summer. From May 1 the Southern Railway will co-operate with Spartan Air Lines in working the London-Ryde-Cowes route inaugurated last year. This service proved very popular, and although only two trips were scheduled daily in each direction, there were occasions at the height of the holiday season when machines were despatched at half-hour intervals. Subject to satisfactory arrangements with aerodrome owners, the G.W.R. will revive last summer's service between Birmingham, Cardiff and Plymouth. A call at Bristol and an extension to Liverpool are under consideration. The only new route to be opened will be from London to Belfast, possibly running later to Glasgow.

Railcar at Wellington

Left to right: Messrs. G. H. Mackley, General Manager; Gard, Designing Engineer; G. W. Wyles, Signal and Electrical Engineer; H. Valentine, Chief Accountant; Reg. Stirling, Train-running Officer; A. Benge, Garage Superintendent; and H. D. Raphael, Leyland Motors Limited.

New Leyland inspection railcar, New Zealand Government Railways, alongside a K class 4-8-2 locomotive (right)
(*See page* 573)

Easter holidaymakers at G.W.R. (left) and L.N.E.R. (right) camping coaches
(*See pages* 564 *and* 570)



Great Western Railway "King" class locomotives ready for the Easter holiday traffic

RAILWAY NEWS SECTION

PERSONAL

RAILWAY AIR SERVICES LIMITED

Railway Air Services Limited, the company formed jointly by the four group railways and Imperial Airways as outlined on page 585 of this issue, has elected the following as its Board of Directors :—

Sir Harold Hartley, C.B.E., F.R.S. (Vice-President, L.M.S.R.), Chairman; and Lieut.-Colonel H. Burchell (Imperial Airways), Mr. O. H. Corble (Assistant to the Chief General Manager and Industrial Agent, L.N.E.R.), Mr. S. B. Collett (Assistant Secretary, G.W.R.) and Mr. G. S. Szlumper, C.B.E. (Assistant General Manager, Southern Railway), Directors.

Sir Felix J. C. Pole, Chairman, Associated Electrical Industries Limited, and formerly General Manager of the Great Western Railway, has accepted the invitation of the Government of Northern Ireland to advise them in an honorary capacity, on the transport situation in Ulster and on the co-ordination of road and rail interests. Some years ago Sir Felix visited and reported on the working and management of the Sudan Government Railways, and has recently returned from a business visit to India and Ceylon.

Mr. Follett Holt, K.B.E., Chairman of the Buenos Ayres Western Railway, and recently appointed Chairman of the Buenos Ayres Great Southern Railway, is making a tour of inspection of both systems, accompanied by Sir Brodie Henderson, Chief Consulting Engineer of both lines.

We regret to record the death, on March 20, of Mr. W. J. Upstone, sometime Divisional Superintendent, Pontypool Road Division, G.W.R., in his 83rd year. After wide experience in the South Wales area, he was appointed Divisional Chief Clerk at Pontypool Road in 1890, Assistant to the Divisional Superintendent, Newport, in 1898 and subsequently Divisional Superintendent, Pontypool Road, from which position he retired in 1912. The funeral took place at Panteg Cemetery on March 22, among those present being Mr. Trevor Roberts and Mr. E. H. Stibbs, Divisional and Assistant Divisional Superintendent, Newport, and a number of present and former G.W.R. officers.

Mr. Charles Mitchell has resigned from the Chairmanship and Mr. B. Walmesley from his Directorship of Dorman Long & Co. Ltd., in connection, it is understood, with the reorganisation of the company and the transfer of executive control to Middlesbrough.

We regret to record the death, as the result of an accident, of Mr. H. P. Dawson, Assistant Divisional Locomotive Running Superintendent, Western Division, Southern Railway, which occurred on March 22. Educated at Brecon, he served a five years' pupil-apprenticeship with the Alexandra (Newport & South Wales) Docks and Railway Company, subsequently gaining marine engineering experience. In 1913 he joined the London Brighton & South Coast Railway, working first as a fireman for six months to gain experience and then being appointed Assistant Locomotive Foreman at Fratton and, in August of that year, Foreman at St. Leonards. In 1916 he was promoted to be District Locomotive Superintendent, Battersea Park. In 1917 he went on active service with the Royal Engineers on the Western Front and was afterwards gazetted to be Corps Light Railway Officer, IV Corps, retiring with the rank of Captain. On return to the L.B.S.C.R., Mr. Dawson resumed his former duties at Battersea and in 1921 was transferred to Brighton as District Superintendent. After the amalgamation he was appointed Assistant Western Divisional Locomotive Running Superintendent at Waterloo, Southern Railway. He was a Member of Council of the Institution of Locomotive Engineers.

Elliott] [*& Fry*

The late Mr. H. P. Dawson,

Assistant Western Divisional Locomotive Running Superintendent, Southern Railway, 1923-34.

Continuing the policy recently put into force by the Buenos Ayres Great Southern and Western Railways, of appointing one chief of department for both lines, it is announced that Mr. Stephen C. Angel, Stores Superintendent of the B.A. Western Railway, has been appointed in a similar capacity to the Great Southern Railway.

From the *London Gazette*:—Engineer and Railway Staff Corps.—Mr. H. B. Smith, D.S.C., late R.N.R., to be Major (March 24). Major Smith is Docks Manager, Newport, G.W.R.

Mr. R. J. Howley having resigned his Directorship of the Argentine Great Western Railway, has been elected a Director of the Buenos Ayres & Pacific in place of Mr. J. S. Austen, who has resigned from that board and has been elected a Director of the Argentine Great Western Railway Company.

Sir William McLintock has accepted the invitation of the South African Government to act as Chairman of a Commission to inquire into and report upon the finances and working of South African Harbours, which are administered with the railways as one department. Sir William was financial adviser to Government in connection with the London Passenger Transport Board.

We regret to record the death at Rio de Janeiro, on March 26, of Mr. William Timperley Batho, in his 68th year. Eldest son of the late Mr. W. F. Batho, Consulting Engineer, Mr. W. T. Batho was educated in England and at Bonn, Germany, and then entered his father's office where he remained until the latter's death. His apprenticeship was served with Dübs & Co., of Glasgow, and he afterwards joined the East Indian Railway Company as a civil engineer and remained in India for a number of years. Upon his return to England he took an active part in the formation of the Diesel Engine Company and was its Managing Director until it became merged with the firm of Carels Frères, of Ghent, into Consolidated Diesel Engine Manufacturers Limited, with whom he occupied a similar position. Mr. Batho was thus largely responsible for the early commercial development of the diesel engine in this country, in which work he was closely associated with the late Dr. Rudolf Diesel. In 1914 he joined Sulzer Bros., London, and had since been in charge of the diesel department there. Upon the formation of Sulzer Bros. (London) Limited he was elected to the Board of Directors, a position he occupied until his death. He was a man of firm character, integrity and strong personality, and his death will be regretted among a wide circle of friends in all parts of the world.

The new waiting and refreshment room adjoining No. 1 platform at Paddington, which, as recorded in our last issue, was opened on March 23. A series of photographs presented by "The Times" has been incorporated in the decorations. Left: The ceremony of presenting the photographs, showing, left to right, Major Astor, M.P., Chairman, The Times Publishing Co. Ltd., and a Director of the Great Western Railway Company; Sir Robert Horne, Chairman, G.W.R.; Mr. A. G. Hubbard, Solicitor, G.W.R.; and Mr. F. R. E. Davis, Secretary, G.W.R. Below is a general view of the new room

NEW WAITING AND REFRESHMENT ROOM AT PADDINGTON, G.W.R.

Great German Speed-up

Notable accelerations are again a feature of the German summer train services, which will come into force on May 15. Last year the Berlin-Hamburg express service was thoroughly dealt with, with the result that the average overall speed of the 12 daily expresses—six in each direction—was raised to the high figure of 58·6 m.p.h., inclusive of stops. This year similar attention has been given to the services between Berlin and Hannover, Cologne, and Aachen; and also between Berlin, Nuremberg, and Munich. Between Berlin and Cologne the six principal westbound trains are to be accelerated by an average of 31 min. each, and the six chief eastbound trains by 38 min.; by these services the mean transit time from Berlin (Friedrichstrasse) to Cologne will be brought down to 7 hr. 34 min., and from Cologne to Berlin to 7 hr. 39 min., for a journey of 362½ miles. The quickest FD times will now be 6 hr. 25 min. eastbound and 6 hr. 28 min. westbound, and will entail some very fast bookings; the four FD trains on the service will cover the 109½ miles between Hamm and Hannover in 102 and 106 min. westbound and 109 and 115 min. eastbound; and the times of the same trains over the 157¾ miles between Hannover and Berlin (Zoo) will be 147, 150 eastbound, 157 and 161 min. westbound respectively. Six of these bookings are at over 60 m.p.h., and the quickest at 64·5 m.p.h. start-to-stop.

On the service from Berlin to Munich, by the Probstzella route (which is not so direct as via Regensburg, but serves Nuremberg as well), the average cut to be made in the time of the five chief southbound trains is 34 min., and in the corresponding northbound service 31 min. This will bring the average southbound journey time down to 9 hr. 8 min., and the average northbound time to 9 hr. 1 min. The greatest acceleration is that of the FD day service, which is cut by 53 min. in the southbound direction and 51 min. in the northbound, bringing the respective overall times between Berlin and Munich down to the unprecedented figures of 7 hr. 38 min. and 7 hr. 32 min. respectively for the journey of 418¾ miles. The latter figure gives an inclusive average speed of 55·5 m.p.h. For the maintenance of these bookings high speeds are necessary over the level section between Nuremberg and Munich, where some years before the war the Bavarian State Railways did some fast travelling, though considerably inferior in speed to what is now to be introduced. The southbound FD service will cover the 123¼ miles between these cities in 124 min. and the northbound in 121 min., and one of the ordinary D class expresses will also be booked from Munich to Nuremberg in 122 min. Between Berlin and Breslau the average reduction of journey is to be 25 min. Considerations of space make it impossible to set out in detail the remarkable improvements of service which are to be brought into operation all over Germany; a description of the changes occupies 25 closely-printed pages of *Die Reichsbahn*, the official monthly journal of the German State Railway.

New works of engineering and electrification play no small part in the improvement of services both inside Germany and connecting internationally with that country. In south-west Germany an important development is the opening of the new Hattingen-Tuttlingen cut-off on the route from Stuttgart to Constance, which is to be coupled with a considerable bettering of the connecting service of the Black Forest line from Offenburg (on the main Karlsruhe-Basel line), via Triberg to Immendingen. Six fast daily services will run in each direction between Offenburg and Constance, not only giving improved access to the Black Forest, but improving the connections between south-west Germany and Zurich, the Engadine, and the Arlberg via Constance. The Stuttgart-Munich electrification plays its part in further international quickenings, one of the most notable being the acceleration by 65 min. of the Orient Express from Paris to Bucarest, and by 55 min. in the opposite direction. Incidentally, the passenger from London for the Ostend section of this train will leave Victoria 60 min. later and reach Vienna 40 min. earlier than hitherto. Outside Germany the improvement of connections through Switzerland by the St. Gotthard route, with acceleration of running times, is to benefit many services from Germany, Holland, and Belgium; the greatest accelerations are in the Rome direction, with the help of the Bologna-Florence *direttissima*, which is to make possible a cut of 3 hr. 5 min. in the overall time of the Riviera Express from Berlin to Rome, and 3 hr. 35 min. from Rome to Berlin. Even greater accelerations are to take place in the service from Berlin to Rome via Munich, Innsbrück and the Brenner, amounting in one case to 4 hr. 20 min. Another improvement in which electrification plays a considerable part follows on the recent introduction of electrical working between Malmö and Stockholm in Sweden; from May 15 the best Berlin-Stockholm time is to be reduced from 20½ to 19 hr. including the train-ferry crossing between Sassnitz and Trelleborg.

That these accelerations do not represent the last word is shown by the following table of super-high-speed services it has been decided to introduce next year, consequent on the success of the Flying Hamburger, which covers the 178·1 miles between Berlin and Hamburg daily in 138 minutes. These services will be covered by special light trains or railcars, mostly diesel.

Route	Km.	Miles.	Min.	M.p.h.
Berlin–Munich	674	418·8	360	69·8
Berlin–Erfurt–Stuttgart	652	405·1	441	55·1
Berlin–Königsberg ..	600	372·8	310	72·2
Berlin–Cologne	579	359·8	300	72·0
Hamburg–Frankfort ..	563	349·8	322	65·2
Cologne–Kassel–Leipzig	552	343·0	356	57·8
Berlin–Frankfort ..	539	334·9	285	70·5
Cologne–Hamburg ..	450	279·6	255	65·8
Hamburg–Magdeburg–Leipzig	404	251·0	215	70·0
Cologne–Stuttgart ..	402	249·8	255	58·8
Stuttgart–Munich–Salzburg	395	245·4	210	70·1
Bremen–Hanover–Leipzig	392	243·6	225	65·0
Breslau–Dresden–Leipzig	383	238·0	240	59·5
Berlin–Breslau	341	211·9	171	74·4
Berlin–Bremen	339	210·7	165	76·6
Frankfort–Basel ..	338	210·0	200	63·0
Berlin–Dresden ..	180	111·8	99	68·6
Berlin–Leipzig	165	102·5	82	75·0
Berlin–Stettin	135	83·9	68	74·0

QUESTIONS IN PARLIAMENT

Railways and Road Bridges

Mr. Banfield on March 28 sought from the Minister of Transport certain information about weak bridges.

Mr. Stanley.—In 1932-33 when circumstances were exceptional there was no special allocation for reconditioning weak bridges in railway, canal, and other private ownership, but grants to the amount of £296,000 were made or promised towards expenditure incurred by highway authorities on such work and on bridging level crossings. In the current year a sum of £415,000 was allocated to these purposes and the grants already made or promised out of this allocation amount to approximately £396,000. I expect that the remainder will be applied to particular schemes before the close of the year. There is no separate provision for the reconstruction of bridges owned by highway authorities. Grants to work of this character are made out of the general allocation, and bridge work is often included in schemes for the improvement of roads or the construction of new roads. Considerable labour would be involved in examining approved schemes in order to ascertain how much of the expenditure related specifically to bridges.

Mr. Chorlton asked the Minister of Transport whether with a view to accelerating the replacement of weak bridges over railways, in view of the employment involved, he would come to some special arrangement with the companies concerned.

Mr. Stanley.—I am anxious that the work of strengthening and reconstructing weak bridges should proceed as rapidly as possible, and have taken steps to facilitate the working out of the necessary programmes between the owners of these bridges and the responsible highway authorities. I have also made it clear that I am prepared to contribute grants of 75 per cent. of the cost of such works, so that all parties are aware of the maximum assistance to be expected from the Road Fund.

Ministry of Transport Accident Report

Hellifield, L.M.S.R.: December 19, 1933

The accompanying sketch is based on the report of the late Lt.-Col. Anderson on the fatal collision between a down goods train and a goods brake van that had escaped from the down loop and ran back in the Blackburn direction. The engine of the goods train was derailed and rolled down the embankment, causing the deaths of the driver and fireman. The brake van originally stood about 430 yards inside the down loop, and the gradients southward of that spot are as follow:—

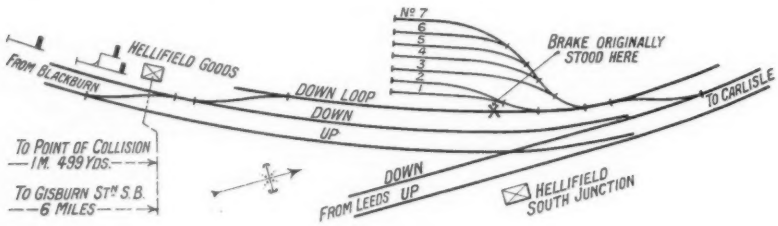


Diagram of Hellifield yard

66 feet rising at 1 in 197 followed by 132 feet rising at 1 in 550 to the point from which the brake van started; thence falling as follows:—198 feet of 1 in 127·7, 264 feet of 1 in 76·9, 330 feet of 1 in 99·7, 1,067 feet of 1 in 103, on which the facing points at the Goods Yard box are situated, 1,274 feet of 1 in 135, 1,327 feet of 1 in 106, 1,200 feet of 1 in 90, 1,000 feet of 1 in 127, and thence rising for 2,300 feet at 1 in 277, on which the collision occurred.

The density of the fog that prevailed at the time, and which was an important contributory factor, may be judged from the statement of the driver and fireman of the train from which the brake was detached that the visibility was 6 wagon lengths; the signalman in the Goods Yard box put it at 20 yards; the man in the South Junction box gave 100 yards as the distance, and the shunter who stood near the brake estimated it at 7 wagon lengths. While fog had been prevalent for some time it was, on the morning in question, intermittent in character, which accounts for the discrepancies in the above figures.

The brake in question belonged to a freight train from Huskisson Dock. The van, on arrival, was detached, and although guard Mortland applied the brake he did not screw it down as hard as it would go. When the Huskisson train was being broken up it was found that the brake was foul of Nos. 1 and 2 sidings, so the train was called back by shunter Hogarth to push the brake clear. Hogarth had not worked in a fog at Hellifield before, but knew that the loop was on a falling gradient. Meanwhile signalman Robinson had not reversed the loop points, as a freight train from Ancoats was following that from Huskisson, and it, too, had to go into the loop. Unfortunately the brake was struck at an unnecessarily high speed, so that it ran down the loop and on to the down line, continuing thence in the wrong direction until it met the Ancoats train. Owing to the fog, signalman Robinson did not see the van approaching down the loop.

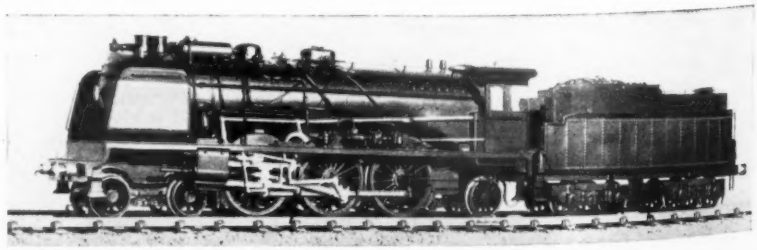
Signalman Robinson was, in Colonel Anderson's opinion, wrong in accepting the Ancoats train, seeing that, according to block regulation 4 (2), this should not be done in foggy weather until the preceding train has been signalled as out-of-section. On the other hand, the main line was clear and the train could have been fully accepted if the loop points were lying for the main line.

The report concludes by saying that the arrangements for trapping the down loop are those normally used and found adequate at similar connections on the level. If the signalman puts the points back promptly to their normal position, for the straight, after the passage into the down goods loop of each train, there should be little risk of an accident such as that under consideration. But there must at times be periods when the facing points are rightly left set for the loop; there then arises an increased risk of recurrence of an accident such as this, due to a rough shunt, as long as the detaching of vehicles is allowed on the down goods loop. The company should therefore be asked to consider the possibility of discontinuing the practice of uncoupling elsewhere than in the dead end sidings. If this cannot be arranged, notwithstanding the extra care which may be needed to see that trains worked into the loop come to a stand clear of the trap points, it would be desirable to convert them to spring points, slotted if provision for setting back movements is needed, and standing normally for the dead end. The company should be asked also to consider the possibility of this alternative method of securing improvement in the safety conditions. Runaway catch points, a train's length in the rear of the Goods Yard home signals, are also recommended.

The Model Railway Club Exhibition

No greater tribute could be paid to the Model Railway Club than the fact that its annual exhibition, which might well have remained the preserve of a limited number of specialists, has become a public event of established popularity. It was pleasant to visit the Central Hall, Westminster, and be reassured that not only do patience, industry and a love of beauty still flourish, but that reverence for their fruits persists. True, the Philistine is always with us, and "Please do not Touch" notices were wisely displayed, but we observed only one small boy stretch out an impious finger to touch an exhibit, and he was sharply reprimanded by his younger brother.

In past years the cinema display has proved so popular that on this occasion a much larger and separate room has been devoted to it, a fortunate move in view of the attraction of the film of the Royal Scot's American tour, which has here been exhibited in public for the first time by the courtesy of the L.M.S.R. Another feature whose discontinuance would make the exhibition barely recognisable is the passenger-carrying model railway. This is again being run by the Society of Experimental and Model Engineers. The track is 90 ft. in length, and among the locomotives employed in hauling the train is the celebrated *Cosmo Bonsor*. The same society is exhibiting several models from actual prototypes, including a



Mr. G. P. Keen's latest O-gauge model, a French Pacific

very fine passenger-hauling "School" class locomotive.

The most favoured of the four railway groups among members' models this year is the L.N.E.R. A wide range of the locomotives of its chief constituent companies is displayed, several of them being old G.N.R. and N.E.R. designs, including single-drivers. Rolling stock was the main interest on both the G.W.R. and L.M.S.R. stands, a feature of the latter being some excellently detailed 00 coaches by Messrs. G. Batchelor and H. Brooker.

Among the foreign models by English makers must be mentioned those of French locomotives and rolling stock, both actual and free-lance, by Messrs. G. P. Keen, the enterprising President of the Model Railway Club, and W. E. P. Kelly. Another striking exhibit in this group is Mr. A. Knock's 2-8-8-2 Chesapeake and Ohio articulated locomotive. The French Model Railway Club (L'Association des Amis des Chemins de fer Français) again has a stand, whereon are shown some of the most ambitious models in the exhibition. These are the work of French railway apprentices, and include an eight-foot Est 2-8-2 tank locomotive, every detail of which is a working model with the sole exception of the Flaman speed recorder. On the same stand is a Bugatti streamlined railcar which has been loaned by the manufacturers.

Among the exhibits of general interest is a model of Trevithick's first locomotive by Mr. W. W. Mason, which he claims to be an exact model and is the outcome of five years of research followed by seven years of building work. The Channel train ferry to be operated next year by the S.R. in co-operation with the Compagnie Internationale des Wagons-Lits is shown in a plan model, representing both coasts, the ports and ferry boats, by Mr. R. W. Brocklehurst. Large-scale glass-case models of the L.M.S. *Princess Royal* and the L.N.E.R. high-pressure locomotive No. 10000 are exhibited by the railways concerned. A feature that has attracted more continuous public attention than any other is perhaps the display of complete working railway layouts. As in the past, model-making firms and manufacturers of tools and materials are well represented. The exhibition is open until 10 p.m. to-morrow, April 7.

L.M.S.R. Commercial Dinner at Manchester

The annual commercial dinner of the District Goods Manager's Department, L.M.S.R., was held on March 12, at the Midland Hotel, Manchester, and was largely attended.

Mr. H. G. Humphreys, District Goods Manager, presided, and in proposing the toast of "The Visitors," said it was pleasing to meet this year under far more encouraging conditions than was the case twelve months ago. The L.M.S. appreciated the improvement in the general outlook; and the speaker paid tribute to the great and many-sided efforts which had been and were being made in Lancashire, and in Manchester in particular, to bring about a better state of trade. Mr. Vincent Z. de Ferranti responded.

Sir W. Clare Lees, in proposing the toast of "The L.M.S.R.," observed that the commercial organisation of the railway had been vitalised by the appointment of Mr. Ashton Davies as Chief Commercial Manager some twelve months ago. One part of the new commercial policy was represented by increased publicity in the press; the public had been invited to communicate their requirements and had been introduced, by means of photographs, to the local managers, goods and passenger. Mr. A. W. Barrett responded in the absence, through illness, of Mr. Ashton Davies.

The toast of "The Chairman" was proposed by Sir Joseph Nall, M.P., and musically honoured.

RAILWAY AND OTHER MEETINGS

Ottoman Railway from Smyrna to Aidin

The Viscount St. Davids (Chairman), presiding at the 152nd half-yearly ordinary general meeting of this company held at Winchester House, E.C., on March 27, said it was a very unsatisfactory report that he had to lay before the shareholders. The profit was £61,000 against £114,000, a decrease of £53,000, or 46 per cent. It had been necessary to take £95,000 from the reserve fund to pay the debenture interest.

Another bad feature was that the road competition was still severe. They had got the cheapest form of land transport in the world in opposition to them, and that was the camel. The continued fall in the value of commodities, coupled with competition, had forced down rates.

Regarding the immediate prospects of the line, they were looking for an improvement this half-year, partly due to a considerable carrying of grain. Generally, Turkey had the following advantages: — The national finances were sound, there was no inflation, no borrowing, a practically balanced budget, and a favourable balance of trade. With those advantages, Turkey was in a position to recover whenever the agricultural products of the world were sold at reasonably fair prices.

The report was adopted.

Sentinel Waggon Works Limited

Mr. P. C. Young, Chairman and Joint Managing Director, presiding at the fourteenth ordinary general meeting held at 20, Iddesleigh House, Caxton Street, Westminster, on March 28, said that their first new railbus had been at work for a year on the Southern Railway. It was driven by a new type of engine, which he might describe as the most efficient steam engine ever used for the propulsion of a rail vehicle. The performance of these engines had led to inquiries from many parts of the world. Further, the latest patent standing in Mr. S. E. Alley's name was for the use of such engines on locomotives in a very novel manner. Three locomotives—by far the largest ever built in Shrewsbury—had just been completed under this patent, and official trials were to take place in Belgium within a few days. The company had been busy since the present year began, and was busy still. It had done something to recover previous losses, but had some way to go before dividends could be thought about.

The report was adopted.

Vickers Limited

The annual general meeting was held on March 26, at the Hotel Victoria, Northumberland Avenue, W.C., General the Hon. Sir Herbert A. Lawrence, G.C.B. (Chairman of the company), presiding. The Chairman said the net profit was £543,364, an increase of £14,326 compared with 1932. At the same time it must be appreciated that in 1933 Vickers-Armstrongs Limited had not the benefit of the guarantee given by the Sun Insurance Company, which guarantee expired at December 31, 1932, so actually the trading results were better. The directors recommended the payment of a dividend of 4 per cent. on the ordinary shares.

Referring to the subsidiary undertakings the Chairman said that owing to lack of orders, the trading results of the Metropolitan-Cammell Carriage Wagon & Finance Co. Ltd. were again disappointing, though its subsidiaries earned small profits. As they were aware, Vickers Limited acquired the Metropolitan Carriage, Wagon & Finance Company in 1919. The Metropolitan Company was in 1928 amalgamated with the rolling stock interests of Cammell Laird & Co. Ltd., and since 1929 a policy of concentration had been pursued with a view to a reduction of manufacturing costs.

As he had pointed out previously, the policy of the British railway companies in constructing the greater proportion of their own rolling stock made the firms in the industry dependent mainly on foreign railways for work, and he ventured to suggest that it would be in the national interests if some pooling of the manufacturing activities of the British railways and the rolling stock manufacturers could be evolved.

The report was adopted.

New Terminal Plan for Chicago

A plan to group four of the main-line termini in Chicago on a single site has been under consideration for some time, and a report has now been prepared by the consulting engineer of the city council's Committee on Railway Terminals which gives a broad outline of the scheme. It is proposed that the station should house all the railways now accommodated in the Central, Grand Central, La Salle Street, and Dearborn terminals, together with the Alton Railroad, which at present uses the Union station. It should be understood that this is a municipal plan which is not necessarily endorsed by the companies affected, although it has much in common with one put forward some years ago by the Illinois Central and not proceeded with owing to the unwillingness of other railways to leave their existing stations. An indication of the extensive nature of the changes involved is given in the following list of present terminals and their tenants who would have to move:—

From the Union station: Alton.

From the Grand Central station: Baltimore & Ohio, Pere Marquette, Chicago Great Western, Minneapolis, St. Paul & Sault Ste. Marie.

From the La Salle Street station: New York Central, Chicago, Rock Island & Pacific, New York, Chicago & St. Louis.

From the Dearborn station: Chicago & Eastern Illinois, Grand Trunk Western, Chicago, Indianapolis & Louisville, Wabash, Chicago & Erie, Atchison, Topeka & Santa Fé, Chicago & Western Indiana.

From the Central station: Illinois Central, Michigan Central, Cleveland, Cincinnati, Chicago & St. Louis.

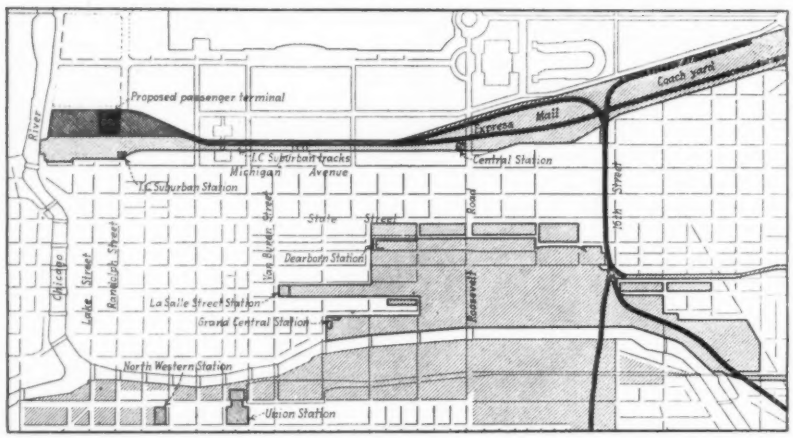


Diagram of new terminal scheme at Chicago, from the "Railway Age"

The proposed site is on Illinois Central territory and abuts upon the south bank of the Chicago river near the junction of Michigan Avenue and Randolph Street. The Terminal Committee's report runs to 100 pages and contains suggested plans for the station buildings. A two-level design is illustrated with a main structure of a modified classical motif above a low-level concourse accommodating 20 station tracks. The provision of separate passenger and luggage platforms is proposed. The Illinois Central property on which the station would be built also provides a site for an extensive carriage yard whose proximity to the terminus would, the report points out, enable considerable economies to be effected by all the railways by reducing rolling-stock movements. The total estimated operating saving resulting to the companies from the scheme is $3,000,000 per annum. The cost of the station and its adjuncts is placed at $19,000,000. Against the estimated economies must be set the fact that several railways would be obliged to leave their present strategic terminals and gain access to the new station by using other companies' metals for considerable distances. The attitude of the railway companies to the scheme has not yet been publicly announced.

RAILWAY AND OTHER REPORTS

Central Argentine Railway.—The board announces that no interim preference dividend payments will be made, and the question of any declaration in respect of the year to June 30, 1934, will be considered when the figures for the whole year are available.

Buenos Ayres Western Railway.—In a statement issued on March 28 the directors announce that they are unable to authorise the payment in April of interim dividends on the 4½ per cent. and 5 per cent. preference stocks. Later the question of payment for the year will be reviewed.

Buenos Ayres Great Southern Railway.—The directors regret that they are unable to authorise the payment usually made in April of a half-yearly instalment of dividends on the 5 per cent. and 6 per cent. preference stocks in respect of the financial year ending June 30 next. The question of payment for the whole year will be reviewed when the accounts to June 30 are completed.

Associated Electrical Industries Limited.—A fall in trading profits, including dividends from subsidiaries, from £474,359 for 1932 to £397,169 for 1933, is shown by the accounts. After meeting debenture interest (£41,454) and providing £81,917 (against £78,564) for depreciation and £89,399 (against £130,888) for income tax, the net profit for 1933 is £184,399, against £222,453 for 1932. The directors recommend a dividend of 3 per cent. on the ordinary shares, comparing with 4 per cent. for the previous year, carrying forward £102,615, against £102,415 brought in.

Beira Railway.—Having regard to the present financial position of the company, the board has decided to pay on April 11 the interest on the 6½ per cent. debenture stock which fell due on January 1, 1934, together with interest thereon to the date of payment at the rate of 6 per cent. per annum in accordance with the provisions of the moratorium scheme.

Bengal Dooars Railway.—The approximate net earnings for the six months ended September 30, 1933, after allowing for Indian taxation, amounted to £21,839, which, together with £53,706 brought forward from March 31, 1933, and £932 for interest, makes a total of £76,477. From this must be deducted £7,200 for six months' dividend on the preference stock, leaving an available balance of £69,277. The directors have declared an interim dividend of 3 per cent. on the ordinary stock on account of the year ending March 31, 1934, leaving £57,277 to be carried forward. The earthquake which occurred in India on January 15, 1934, did not result in any damage to the company's railway, though the shocks caused cracks in the walls of a few buildings.

Westinghouse Electric & Manufacturing Company (U.S.A.).—For the year ending December 31, 1933, this company reports a net loss of $8,636,841, or $266,699 less than the 1932 net loss of $8,903,540. In the years 1931 and 1930, respectively, Westinghouse reported a net loss of $3,655,659, and a net income of $11,881,705. Sales billed last year totalled $68,188,353, as compared with $77,073,586 in 1932, a decrease of 11·5 per cent. Orders received during 1933, on the other hand, increased 5 per cent. over those of the previous year, the total being $72,473,117, as compared with $69,082,468. In this connection the report notes that in 1932 the trend was downward throughout the year, whereas in 1933 the trend turned upward, starting from the low point in January. The volume of business received in the second half of last year was 48 per cent. greater than for the corresponding period of 1932.

THE MONTH'S RAILWAY LAW

Access to Docks

London & North Eastern Railway Company v. *British Trawlers Federation Limited. Times*, February 24.

The dispute between railway and motor transport in connection with the fishing industry at Lowestoft docks reached its final stage on February 23, when the House of Lords dismissed the railway company's appeal.

The plaintiffs in the case, as will be remembered, were of three classes—a company interested in the fishing industry, the owners of a fleet of trawlers, and certain fish merchants. Their claim was that as against the railway company who owned the harbour and docks they were entitled to use motor vehicles for removing fish which they bought there.

The railway company imposed conditions on all such persons to whom they granted a licence admitting vehicles on private roads to the fish docks that they would only use them for the transport of fish beyond the docks where the fish was to be sold or consumed within 12 miles. This licence could be withdrawn at any time. All the plaintiffs had notice of these conditions, but while the third class had contracts with the railway company as to the use of their motor vehicles, the other two classes were in no contractual relationship.

Mr. Justice Branson in the first instance held that the first and second classes of plaintiffs were bound by the conditions. The Court of Appeal varied this, making declarations more favourable to the plaintiffs, and now the House of Lords has again varied the declarations in favour of the plaintiffs made by the Court of Appeal.

The Final Declarations

The House of Lords, in dismissing the railway company's appeal, made declarations of which the following is a summary:—(1) That subject to any valid by-law each of the plaintiffs was entitled to send vehicles on to the harbour docks and fish market for the purpose of removing fish landed or purchased by them; (2) that the railway company was not entitled to impose any restriction on the manner in which the fish is to be dealt with after removal from the dock premises, or from the place to where it is to be taken, or to require any of the plaintiffs to obtain licences containing such restrictions before taking vehicles on to the premises.

These declarations carry out the view taken by the House that while "shipping" or "unshipping" in the Special Act of 1865 were not limited to the lifting of goods between quay and ship, "access" in section 33 of the Harbours Docks and Piers Clauses Act, 1847, is not limited to access in person without any vehicle: as they said, any person or class of persons legitimately using the market are to have the right of access, except so far as it is limited by by-laws duly made, and confirmed by the competent authority:

The Court of Appeal carefully went into the history of fishing in the harbour and limited its declarations to the marketing for trawl fish. But the House of Lords treated this limitation with disparagement. They said that only the question of reasonableness would admit evidence as to the course of business between the different fish markets, and that no such question arose here.

The railway company relied throughout on *Perth General Station Committee* v. *Ross* (1897), A.C. 479. That case is authority for the statement that, apart from any facilities granted by the Railway & Canal Commission, a railway company has the right to exclude those desiring to use the railway, and may impose upon the rest of the public such terms as it thinks proper. In that case the committee, in order to favour its own hotel at Perth station, made it a condition of access to the station that other hotel servants should not wear a distinctive badge or livery. The right of access is permissive only, and the House of Lords held that the committee was entitled to impose such conditions.

In the *Lowestoft case* the Court of Appeal and the House of Lords held that *Perth General Station Committee* v. *Ross* had no application. That case might have applied if the prohibition had been confined to vehicles belonging to persons other than owners of fish, who wanted to bring their vehicles into the docks on the chance that they might be employed to remove the fish. But that was not within the facts in the *Lowestoft case*, and for that particular purpose there was no right of restriction upon owners.

Agreed Charges

It is probable that controversy at the docks may be cleared up to a large extent by the Road & Rail Traffic Act, 1933, section 37, to which attention was drawn recently in our comments on the Great Western Railway Company's suit with the Bristol grain merchants. That section enables the railway companies to make special charges for the carriage of goods subject to the approval of the Rates Tribunal. In spite of the judgments in the *Lowestoft case*, it is obviously desirable in the interests not only of the railway companies, but also of the public, that quantities of fish which are consigned from the docks to a *distant* destination should be carried by rail and not by road. Congestion on the roads is thus avoided and the fish reaches its destination as quickly if not more quickly.

Provided that the railway companies are allowed to make a special contract rate with the fish owners, they will secure this portion of traffic and the motor transport will take the short distance traffic. This and other recent cases afford ample confirmation of the view that transport can no longer be considered from one point of view whether rail, road or water; but that each must be regarded as part of a comprehensive whole, and that competition should give place to a system of rationing which would allot to each that portion of traffic which it is best fitted to carry.

Flat Rates for Traders

Thirty-seven applications under section 37 of the Road & Rail Traffic Act, 1933, have already been heard by the Railway Rates Tribunal. The railway companies therein sought the approval to sanction special traffic charges between the companies and industrial traders. The National Federation of Iron and Steel Manufacturers objected to the agreements, representing other traders whose business would be detrimentally affected. Evidence was given on behalf of the railway companies that their own revenue would benefit from the agreement and that the companies were prepared to give other traders the same terms in return for similar advantages, so that no detriment to competitors in the trade was really involved. Judgment has been reserved. Further applications have also been considered.

A Railway Director's Pension

The question of liability to income tax upon a pension paid to a retired railway director was raised in *Owens' Executors* v. *Inglis* before Mr. Justice Finlay on March 5. Sir Charles Owens was from 1898 to 1911 General Manager, and from 1912 to 1922 a Director of the London & South Western Railway Company, and from 1923 to 1930 a Director of the Southern Railway Company. From 1911 until his death in 1933 he enjoyed a pension of £1,000 a year from the superannuation fund as a retired servant of the company. As to this tax was payable and no question arose, but he also enjoyed a further pension of £1,000 a year payable out of the company's general fund "at the will of the directors," and it was as to this that the dispute arose. For the revenue authority it was argued that, when the railway amalgamation took place in 1922, the Railways Act 1921, by section 3 (sub-s. 1, *b*) and the Third Schedule turned this voluntary pension into an obligatory pension on which tax was payable. Mr. Morrison, K.C., for Sir Charles' executors, argued to the contrary that as Sir Charles had long before 1922, when the Act came into force, ceased to be an "existing officer or servant" of the company, the Third Schedule had no application to this voluntary pension. It remained a voluntary pension as before, and it is well established that such a pension, which depends on the goodwill of the governing body, is not liable to tax in the hands of the recipient: *Stedeford* v. *Beloe* (1932), A.C. 388. Mr. Justice Finlay agreed with this view and the claim of the Revenue to tax on this pension was therefore defeated.

NOTES AND NEWS

Dorman Long Moratorium.—Mr. Justice Eve, in the Chancery Division, on March 26, granted an extension until July 31 of a moratorium between Dorman Long & Co. Ltd. and the holders of its two classes of debenture stock, to give further time for the preparation of a scheme of reconstruction.

Agreed Charges.—As will be seen from the legal notice published on page 599, a fourth set of applications has been lodged with the Railway Rates Tribunal for its approval of agreed charges under the provisions of Section 37 of the Road and Rail Traffic Act, 1933. Objections to these applications, which number 13 and may be inspected at the office of the Tribunal, must be lodged with the Registrar on or before April 27.

North British Locomotive Co. Ltd. to Build 50 Locomotives for South Africa.—As announced in our Contracts and Tenders section this week, the North British Locomotive Co. Ltd. has been successful in securing in face of world competition the order for 50 class 19C 4-8-2 locomotives and tenders for which inquiries were issued early this year by the South African Government Railways. Details of the order and delivery dates are given on page 598 of this issue.

Reserved Seat Indication.—A new system for guiding passengers to their reserved seats has been introduced at Euston, L.M.S.R. The coach numbers and letters are displayed on prominent black on yellow labels on the carriage sides, and large wooden plaques with corresponding indications hang in the vicinity of the appropriate vehicle from an overhead wire. The reserved seat attendants have now been equipped with distinctive yellow armlets and cap bands.

Yorkshire Coast Line Improvements, L.N.E.R.—To improve the working and augment the train services during the summer months on the Yorkshire Coast lines between Scarborough, Whitby and Middlesbrough, a considerable mileage of which is single line, the following works are to be carried out: New passing places for trains at Sandsend, Hawsker, and Fyling Hall; signalling alterations at Guisborough, Brotton, Whitby West Cliff, and Prospect Hill; station alterations at Whitby West Cliff (additional platform line for railcars), Scarborough Central (new platform line for Coast line trains), Nunthorpe and Brotton (lengthening of platforms), Whitby West Cliff and Robin Hood's Bay (improvements in locomotive watering facilities). The difficulties of negotiating the stiff gradients on this picturesque route, which affords some of the most beautiful views in the country and gives access to natural holiday grounds which are almost incomparable in their beauty, necessitates the running of short trains hauled by powerful locomotives. Under the new proposals better services will be provided.

New Dining Car Depot at Newcastle Central, L.N.E.R.—Owing to the expansion of its dining car and buffet car facilities, the L.N.E.R. has decided to extend the dining car depot at Newcastle Central station, from which the major portion of these cars receive their supplies of food, crockery, cutlery, &c.

Improvements at Bradford Goods Depot, L.M.S.R.—At Bridge Street goods depot, Bradford (Yorks), the coal-fired boilers which at present supply water pressure for the hydraulic appliances are to be replaced by two powerful electric motors. Three of the most heavily used hydraulic capstans will be converted to direct electric drive, while a new electric traverser, working as an extension of an existing hydraulic traverser, is to be installed in the goods shed.

New Petrol - Electric Mobile Cranes, L.N.E.R.—Ten of the principal centres on the L.N.E.R. have been equipped with petrol-electric mobile cranes for the rapid unloading of freight, namely: Hull (Alexandra Dock), Rotherham, Shipley, Loughborough, King's Cross, Marylebone, Leeds (Wellington), Bishopsgate, Ipswich, Manchester (Deansgate). These new cranes can be manœuvred in restricted spaces and move from end to end of the freight trains as soon as they arrive at their destinations.

Rhodesia and Mashonaland Railway's Moratorium.—In pursuance of the power contained in Clause 11 (vii) of the scheme of arrangement sanctioned by Order of the Court made on December 20, 1932, the Debenture Holders' Committee appointed under the scheme has granted an extension of the moratorium up to and including May 2, 1935.

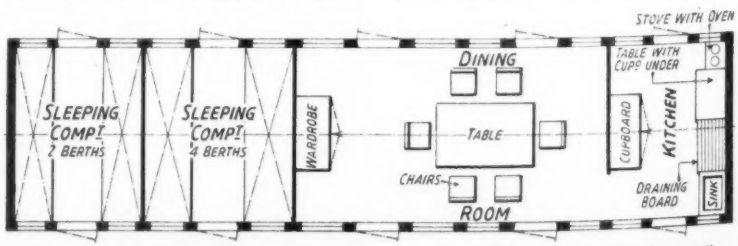
New Facility for Golfers.—A scheme to give golf enthusiasts the opportunity of playing on two of the most noted courses in Scotland will be launched by the L.M.S.R. on April 27, from which date seven-day tickets will be issued from most towns in England and Wales permitting the holder to spend the first half of the week at Turnberry and the second at Gleneagles. The tickets will include all hotel charges and golf fees at both places and first-class and sleeping-car accommodation on the outward and return journeys.

Second Eastman Transport Report.—Mr. Joseph B. Eastman, Federal Co-ordinator of Transportation under the U.S.A. Emergency Transport Act, presented his second report to Congress on March 10. In this he recommended that motor lorries, omnibuses and water transportation should be brought under federal control as soon as possible. His first report, urging the ultimate operation and ownership of the railways by the Government, was commented upon in an editorial note in THE RAILWAY GAZETTE of February 9.

New Air Services.—A non-stop air service to Plymouth was inaugurated by Provincial Airways Limited on March 28. The journey occupies one and a half hours, and the fares include transport from the passengers' homes to the aerodrome of departure and conveyance on arrival to any desired address. Lord Londonderry, Secretary of State for Air, will to-day visit the Liverpool airport at Speke and officially inaugurate two daily air-services, to be operated by Midland & Scottish Air Ferries. One of the new routes will link London with Belfast via Birmingham, Liverpool and the Isle of Man. The other will run from Liverpool to Glasgow.

National Transport Coming?—Addressing members of the National Union of Railwaymen at Inverness recently, Mr. J. Marchbank said it was confidently expected that there would be a large increase in railway revenues this year, which would justify the claims of all grades of railway workers for a restoration of the cuts. Dealing with the future position of transport, he said the general trend was for railway companies to become the principal agency for the whole of transport both by road, rail, and inland waterway. This would be an accomplished fact before many years, and national ownership of the whole means of transport for the people of the country would be essential.

Canadian National Earnings.—For the month of February, 1934, gross earnings were $11,525,217, an increase of $2,069,994 in comparison with February, 1933. In the operating expenses of $12,250,207 there was an increase of $934,472. Aggregate gross earnings from January 1 to



Plan of Great Western camping coach. (*See pages* 564, 570 *and* 586)

February 28, 1934, amount to $3,908,982, and the operating expenses of $24,621,750 show an increase of $1,675,002, but the aggregate deficit of $1,533,956 is $2,233,980 less than for the corresponding period of 1933.

Opening the Florence - Bologna Direttissima.—Signor Mussolini is to perform the opening ceremony of the new direct line between Florence and Bologna on April 22. This line was the subject of an illustrated description in THE RAILWAY GAZETTE of May 22, 1931.

Unemployment Figures.—The figures of unemployment announced by the Ministry of Labour for March are the lowest recorded since October, 1930. The total number on the register was 2,201,597, a reduction of 116,322 on the month and of 574,607 in comparison with the total in March of last year.

Electrical Engineers' Re-union.—Overseas members of The Institution of Electrical Engineers will be entertained at a conversazione and re-union, to be held at the Institution Building, Savoy Place, Victoria Embankment, W.C.2, on July 11. Members who will be in England at the time of the function and who wish to attend should communicate with the Secretary immediately on their arrival in this country.

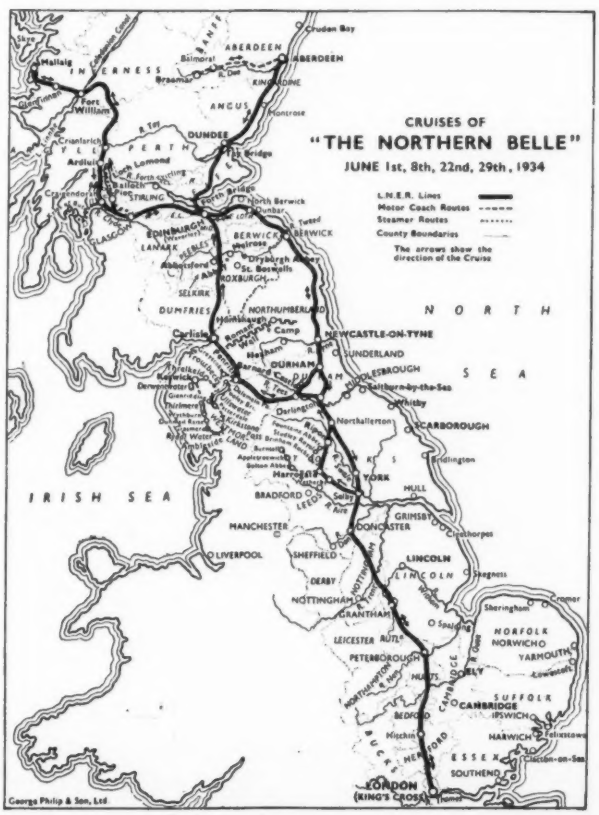
Canadian Pacific Earnings.—Gross earnings of the Canadian Pacific Railway for the month of February, 1934, amounted to $8,571,000, an increase of $1,474,000 in comparison with February, 1933. Working expenses (including pensions) were $7,752,000, an increase of $752,000. Net earnings were $819,000, an increase of $722,000. Aggregate gross earnings from January 1 to the end of February have reached a total of $17,541,000, being an increase of $2,768,000, and the net earnings of $1,708,000 show an improvement of $1,288,000.

Roller Bearing Axles in U.S.A.—The Timken locomotive described in THE RAILWAY GAZETTE of October 30, 1931, and which was sold to the Northern Pacific Railway after completing trial runs over some 120,000 miles on various systems in 1932, has since run approximately 150,000 miles with the Northern Pacific. The results have been so satisfactory that a further 10 locomotives have now been ordered by the Northern Pacific, and these are to be equipped with Timken bearings on all axles on both locomotives and tenders. Twenty-nine heavy tenders are being built for the New York Central, and it is expected that orders will shortly be placed for a further 150. The first 29 will be fitted with Timken roller bearings on an application which is interchangeable with plain bearings.

Summer Time.—Summer time will begin in France next Saturday night, April 7-8. This is a fortnight in advance of British summer time.

L.N.E.R. Special Trains for Holiday Camps.—Three special trains were run on the Thursday before Easter from Liverpool Street, London, to Hemsby and Caister, exclusively for visitors to Hemsby and Caister holiday camps. These trains travelled via Ipswich, and avoiding Norwich passed by Wensum junction from Trowse to Whitlingham, where the Cromer line was taken to North Walsham. There the trains left the L.N.E.R. line for the M. & G.N.R. system to Caister.

New Northern Belle Cruises.—Beginning on the evening of Friday, June 1, the L.N.E.R. Northern Belle will again make periodical departures from King's Cross for a series of rail cruises. There will be four tours in June, covering the Yorkshire spas, the Lake District and Scotland. As before, road and steamer trips have been arranged from various centres at which the train will call. A comparison of the itinerary map on this page with that which appeared on page 843 of THE RAILWAY GAZETTE of June 23, 1933, will show that the route has been slightly altered, principally in the Yorkshire area, where various coastal points formerly touched have been omitted. The cruises start at 9 p.m. on June 1, 8, 22 and 29.



Vauxhall Station, Yarmouth, L.N.E.R.—A scheme for carrying out alterations and improvements in the station buildings at Vauxhall station, Yarmouth, has just been sanctioned.

The Road Traffic Bill, 1934.—As was expected, the Road Traffic Bill, introduced into the House of Commons on the eve of its rising for Easter, deals with a number of other things besides seeking to find a way of reducing road accidents. Of its five parts, the first, in addition to proposing a 30 m.p.h. speed limit for private cars and motor cycles in built-up areas, would reduce the number of speed limits for heavy vehicles from 6 to 4, with the lowest at 5 m.p.h. Part II seeks to remedy certain shortcomings in the existing law regarding insurance, and Part III, while dealing with white patches on cycles and crossing places for pedestrians, would also give authority to the Minister to make grants from the Road Fund for the maintenance of weigh-bridges. Part IV does away with the statutory distinction between express and stage carriages, dispenses with public sittings to hear applications for licences for occasional excursions, and does away with the necessity for backings for purely corridor areas. An important provision would make drivers of heavy goods vehicles obtain a licence from the Traffic Commissioners and be tested like the drivers of public service vehicles. The clauses in Part V make a few minor amendments in the Road Traffic Act, 1930.

Memorial at Merthyr to Richard Trevithick.—A memorial erected at Merthyr to Richard Trevithick is to be unveiled on April 19 by Mr. David E. Roberts, a Cardiff consulting engineer, who has played a leading part in the Trevithick Centenary movement. The memorial, which takes the form of a plain stone monument, has been raised by the Trevithick Centenary Commemoration Committee, in association with the Merthyr Corporation. It is situated in an ornamental garden near the site of the old Penydarren ironworks. The inscription on the memorial reads :—"Richard Trevithick (1771-1883). Pioneer of high-pressure steam. Built the first steam locomotive to run on rails on February 21, 1804. It traversed the spot on which this monument stands on its way to Abercynon." At the base of the memorial are stone chairs, with sections of iron rails taken from the Merthyr-Abercynon tram-

way over which Trevithick's Penydarren locomotive of 1804 travelled.

Manchukuo Development. — The South Manchuria Railway proposes to float, during the coming financial year, five companies for the economic development of Manchukuo. The most important project is an aluminium factory with a capital of £1,750,000, but the coal industry is to be developed beyond the Fushun group by the formation of the Manchuria Collieries Company with a capital of £700,000, subscribed by the State and the S.M.R. The other companies are the Manchuria Gold Mining Company, with a capital of £700,000, floated in conjunction with the Oriental Development Company; a bean mill in Dairen, for extracting oil from soya beans; and an automobile assembly factory in Mukden. It will be recalled that last year the South Manchuria Railway obtained powers to raise its capital from 420,000,000 to 800,000,000 yen, largely in view of the system having been swelled to over three times its original size by the acquisition of the old Chinese lines in Manchuria.

Railway Shopmen's Earnings.—At a meeting held in Westminster, shortly before Easter, of the National Shopmen's Council, which includes representatives of the N.U.R., the various craft unions, and the railway companies, an application was made for the cancellation of the 4⅛ per cent. cut made in 1931 in railway shopmen's earnings. Mr. Kenelm Kerr, replying for the companies, promised that they would examine the position, and the whole question would be considered at a further meeting to be arranged later.

Railway Wage Cuts.—The executive of the Associated Society of Locomotive Engineers and Firemen, meeting in London on Wednesday, had under consideration the question of making an application to the railway companies for the restoration of the cuts made since March, 1931. The National Union of Railwaymen has already decided to make a claim with this object in view. It has been decided to hold a joint meeting of the executives of the three railway trade unions in London on Tuesday afternoon next, at which a general and united policy will be discussed.

A Crop of Railway Mishaps.—During the last few days there have been several minor railway accidents which have received the amount of publicity to be expected for very rare events. On March 28, the second portion of the 10.25 p.m. train from King's Cross to Edinburgh, L.N.E.R., collided with the first portion at Bridge junction, Doncaster, at about 2 a.m., and derailed some of the rear vehicles of the latter. Nobody on either train was hurt. On April 1, the 10.23 p.m. Southern electric train from Charing Cross collided just outside Caterham with the 11.4 p.m. from that station to Purley, causing slight damage to the leading motor coaches of each train. One or two passengers complained of shock. On April 2, a light engine collided with the rear of an excursion train from Nottingham to Marylebone, L.N.E.R., near Kilburn and Brondesbury Metropolitan station. The driver of the light engine and several passengers in the excursion train were injured. The accident occurred on the bridge at Kilburn which carries the railway over the main road. The last coach was damaged and debris fell into the street below. On the evening of the same day a light engine collided with a stationary passenger train near Glasgow Central, L.M.S.R. The last coach of the train was damaged and several persons were injured.

G.W.R. Ambulance Presentation at Birmingham.—The annual social gathering and distribution of awards to members of ambulance classes in the Great Western Railway Birmingham Division was held at the Grand Hotel, Birmingham, on March 26, when some 500 members and their friends, from all parts of the Division, assembled under the presidency of Mr. F. K. Pelley, District Goods Manager. The Lord Mayor of Birmingham, who presented gold medal awards for 15, 20, 25 and 30 years' first-aid efficiency, referred to the basis of service in the ambulance movement, and said that of the 722 candidates in the division last year, no fewer than 711 had passed a successful examination. Competition trophies were presented by Mr. Cyril Lloyd, and included the Robert Fellows Bowl (advanced teams) to the Stafford Road team, and Felix Fellows Cup (Beginners' teams) to Leamington Spa. Mr. W. E. Hart presented examination awards to members of the classes, and congratulated the members on their success.

Forthcoming Events

Apr. 6 (*Fri.*).—Institute of Transport (Leeds), at Town Hall, 6.30 p.m. Annual General Meeting.
Institution of Mechanical Engineers, Storey's Gate, London, S.W.1., 7 p.m. Informal Meeting.
Apr. 7 (*Sat.*).—Locomotivemen's Craft Guild (London), at Borough Polytechnic Inst., S.E.1, 6.30 p.m. "Safety on Railways."
Apr. 10 (*Tues.*).—Institute of Transport (Birmingham), at Queen's Hotel, 6 p.m. Annual General Meeting.
Institution of Civil Engineers, Great George Street, London, S.W.1, 6 p.m. "Sydney Harbour Bridge."
Retired Railway Officers' Society, in Room 300, Great Eastern Hotel, Liverpool Street, E.C.2, 2.30 p.m. Ordinary Meeting.
Apr. 11 (*Wed.*).—Permanent Way Institution (London), in Staff Dining Room, Waterloo Station 7 p.m. "Engineering Problems in Fenland," by Mr. B. P. Fletcher.
Apr. 12 (*Thurs.*).—Institute of Metals (London), at Society of Motor Manufacturers and Traders, Limited, 83, Pall Mall, S.W.1, 7.30 p.m. Annual General Meeting.
Institution of Locomotive Engineers (London) at Inst. of Mechanical Engineers, Storey's Gate, S.W.1, 6 p.m. "Boiler Repairs," by Mr. R. I. Kirkland.
Apr. 13 (*Fri.*).—Institute of Transport (Newcastle), at Royal Station Hotel, 7.30 p.m. Annual General Meeting. "Passenger Transport Policy," by Mr. C. A. Hopkins.
Railway Club, 57, Fetter Lane, London, E.C.4, 7.30 p.m. "The London Chatham & Dover Railway," by Mr. C. N. Anderson.

British and Irish Railway Stocks and Shares

Stocks	Highest 1933	Lowest 1933	Prices Apl. 4, 1934	Prices Rise/Fall
G.W.R.				
Cons. Ord. ...	55½	31	59½	—
5% Con. Prefce. ...	109¾	69½	111½	—
5% Red.Pref.(1950)	109¼	87½	110½	—
4% Deb.	108 15/16	99¼	108½	+1
4½% Deb.... ...	108	100¾	110½	—
4½% Deb.... ...	116	106	117½	—
5% Deb.	128	117¼	128½	—
2½% Deb.... ...	65	60	68½	+1
5% Rt. Charge ...	124	111½	126½	—
5% Cons. Guar. ...	122	103	123½	—
L.M.S.R.				
Ord.	29⅞	12⅛	28	+½
4% Prefce. (1923)	51	17	59	+½
4% Prefce. ...	72	33¼	81	—
5% Red. Prf. (1955)	93	47¼	99	—
4% Deb.	103¼	89½	103½	—
5% Red.Deb.(1952)	114	105	113½	—
4% Guar.	97¼	68⅜	99½	−½
L.N.E.R.				
5% Pref. Ord. ...	22½	7¾	21¼	—
Def. Ord.	10⅝	4⅛	10½	—
4% First Prefce. ...	65½	19⅜	69	—
4% Second Prefc .	40½	12¼	41½	—
5% Red.Pref.(1955)	83¾	27	89½	—
4% First Guar. ...	94⅝	58¼	96	−½
4% Second Guar.	89¼	48	91	−½
3% Deb.	77	60¼	79	—
4% Deb.	102⅝	80	103	—
5% Red.Deb.(1947)	112	102½	110½	—
4½% Sinking Fund Red. Deb.	107½	98⅝	106½	—
Southern				
Pref. Ord.... ...	71	27¾	82	+1
Def. Ord.	24⅜	9⅝	29½	+1
5% Prefce. ...	107 11/16	74	110½	−1
5% Red.Pref.(1964)	107⅝	78⅞	111½	—
5% Guar. Prefce.	124¼	102⅝	124½	—
5% Red.Guar.Pref. (1957)	115⅝	103½	114½	—
4% Deb.	107½	96¾	105½	—
5% Deb.	126½	114¼	126½	—
4% Red. Deb. 1962–67	107¼	100	106½	—
Belfast & C.D.				
Ord.	6	4	5	—
Forth Bridge				
4% Deb.	99½	95½	100½	—
4% Guar. ...	98½	94	100½	—
G. Northern (Ireland)				
Ord.	7½	3½	5	—
G. Southern (Ireland)				
Ord.	28	16	24½	—
Prefce.	24	12⅛	19	—
Guar.	42	16¾	44⅛	—
Deb.	60	30⅞	66	+¼
L.P.T.B.				
4½% "A" ...	117⅞	112	118½	—
5% "A"	127¼	119¼	127	—
4½% "T.F.A." ...	111¼	106	109½	—
5% "B"	122½	114	120½	—
"C"	86⅝	74½	78½	+1
Mersey				
Ord.	16¼	5	13	—
4% Perp. Deb. ...	83	63⅞	86½	—
3% Perp. Deb. ...	62	51	65½	—
3% Perp. Prefce....	50⅝	27	50½	—

* ex-dividend.

British and Irish Railway Traffic Returns

GREAT BRITAIN	Totals for 12th Week			Totals to Date		
	1934	1933	Inc. or Dec.	1934	1933	Inc. or Dec.
	£	£	£	£	£	£
L.M.S.R. (6,941¾ mls.)						
Passenger-train traffic...	394,000	396,000	– 2,000	4,382,000	4,318,000	+ 64,000
Merchandise, &c. ...	471,000	431,000	+ 40,000	5,339,000	4,728,000	+ 611,000
Coal and coke ...	271,000	227,000	+ 44,000	3,276,000	3,149,000	+ 127,000
Goods-train traffic ...	742,000	658,000	+ 84,000	8,615,000	7,877,000	+ 738,000
Total receipts	1,136,000	1,054,000	+ 82,000	12,997,000	12,195,000	+ 802,000
L.N.E.R. (6,339 mls.)						
Passenger-train traffic...	254,000	249,000	+ 5,000	2,871,000	2,856,000	+ 15,000
Merchandise, &c. ...	330,000	304,000	+ 26,000	3,829,000	3,273,000	+ 556,000
Coal and coke ...	254,000	200,000	+ 54,000	3,039,000	2,784,000	+ 255,000
Goods-train traffic ...	584,000	504,000	+ 80,000	6,868,000	6,057,000	+ 811,000
Total receipts	838,000	753,000	+ 85,000	9,739,000	8,913,000	+ 826,000
G.W.R. (3,750 mls.)						
Passenger-train traffic...	157,000	156,000	+ 1,000	1,828,000	1,827,000	+ 1,000
Merchandise, &c. ...	186,000	175,000	+ 11,000	2,119,000	1,880,000	+ 239,000
Coal and coke ...	112,000	103,000	+ 9,000	1,349,000	1,311,000	+ 38,000
Goods-train traffic ...	298,000	278,000	+ 20,000	3,468,000	3,191,000	+ 277,000
Total receipts	455,000	434,000	+ 21,000	5,296,000	5,018,000	+ 278,000
S.R. (2,177 mls.)						
Passenger-train traffic...	236,000	233,000	+ 3,000	2,763,000	2,706,000	+ 57,000
Merchandise, &c. ...	66,000	64,000	+ 2,000	724,500	671,000	+ 53,500
Coal and coke ...	36,000	32,000	± 4,000	448,500	426,000	+ 22,500
Goods-train traffic ...	102,000	96,000	+ 6,000	1,173,000	1,097,000	+ 76,000
Total receipts	338,000	329,000	+ 9,000	3,936,000	3,803,000	+ 133,000
Liverpool Overhead ... (6½ mls.)	1,044	1,054	– 10	12,926	12,361	+ 565
Mersey (4½ mls.) ...	4,347	4,216	+ 131	50,359	47,639	+ 2,720
*London Passenger Transport Board ...	513,800	—	—	18,932,000	—	—
IRELAND						
Belfast & C.D. pass. (80 mls.)	1,633	1,684	– 51	20,658	20,422	+ 236
,, ,, goods	536	526	+ 10	6,406	6,139	+ 267
,, ,, total	2,169	2,210	– 41	27,064	26,561	+ 503
Great Northern pass. (562 mls.)	7,750	900	+ 6,850	84,450	41,800	+ 42,650
,, ,, goods	8,250	850	+ 7,400	97,650	41,200	+ 56,450
,, ,, total	16,000	1,750	+ 14,250	182,100	83,000	+ 99,100
Great Southern pass. (2,168 mls.)	21,006	17,758	+ 3,248	219,398	212,810	+ 6,588
,, ,, goods	31,687	38,035	– 6,348	379,492	365,843	+ 13,649
,, ,, total	52,693	55,793	– 3,100	598,890	578,653	+ 20,237

* 38th Week.

British and Irish Railway Traffic Returns

GREAT BRITAIN	Totals for 13th Week			Totals to Date		
	1934	1933	Inc. or Dec.	1934	1933	Inc. or Dec.
	£	£	£	£	£	£
L.M.S.R. (6,941¾ mls.)						
Passenger-train traffic...	628,000	407,000	+ 221,000	5,010,000	4,725,000	+ 285,000
Merchandise, &c. ...	387,000	427,000	– 40,000	5,726,000	5,155,000	+ 571,000
Coal and coke ...	233,000	202,000	+ 31,000	3,509,000	3,351,000	+ 158,000
Goods-train traffic ...	620,000	629,000	– 9,000	9,235,000	8,506,000	+ 729,000
Total receipts	1,248,000	1,036,000	+ 212,000	14,245,000	13,231,000	+ 1,014,000
L.N.E.R. (6,339 mls.)						
Passenger-train traffic...	374,000	258,000	+ 116,000	3,245,000	3,114,000	+ 131,000
Merchandise, &c. ...	298,000	305,000	– 7,000	4,127,000	3,578,000	+ 549,000
Coal and coke ...	217,000	201,000	+ 16,000	3,256,000	2,985,000	+ 271,000
Goods-train traffic ...	515,000	506,000	+ 9,000	7,383,000	6,563,000	+ 820,000
Total receipts	889,000	764,000	+ 125,000	10,628,000	9,677,000	+ 951,000
G.W.R. (3,750 mls.)						
Passenger-train traffic...	253,000	168,000	+ 85,000	2,081,000	1,995,000	+ 86,000
Merchandise, &c. ...	163,000	173,000	– 10,000	2,282,000	2,053,000	+ 229,000
Coal and coke ...	106,000	101,000	+ 5,000	1,455,000	1,412,000	+ 43,000
Goods-train traffic ...	269,000	274,000	– 5,000	3,737,000	3,465,000	+ 272,000
Total receipts	522,000	442,000	+ 80,000	5,818,000	5,460,000	+ 358,000
S.R. (2,177 mls.)						
Passenger-train traffic...	376,000	247,000	+ 129,000	3,139,000	2,953,000	+ 186,000
Merchandise, &c. ...	59,500	74,000	– 14,500	784,000	745,000	+ 39,000
Coal and coke ...	33,500	32,000	+ 1,500	482,000	458,000	+ 24,000
Goods-train traffic ...	93,000	106,000	– 13,000	1,266,000	1,203,000	+ 63,000
Total receipts	469,000	353,000	+ 116,000	4,405,000	4,156,000	+ 249,000
Liverpool Overhead ... (6½ mls.)	1,031	1,037	– 6	13,957	13,398	+ 559
Mersey (4½ mls.) ...	4,388	4,091	+ 297	54,747	51,730	+ 3,017
*London Passenger Transport Board ..	507,700	—	—	19,439,700	—	—
IRELAND						
Belfast & C.D. pass. (80 mls.)	1,840	1,710	+ 130	22,498	22,132	+ 366
,, ,, goods	535	641	– 106	6,941	6,780	+ 161
,, ,, total	2,375	2,351	+ 24	29,439	28,912	+ 527
†Great Northern pass. (562 mls.)	9,150	900	+ 8,250	93,600	42,700	+ 50,900
,, ,, goods	9,550	1,200	+ 8,350	107,200	42,400	+ 64,800
,, ,, total	18,700	2,100	+ 16,600	200,800	85,100	+ 115,700
Great Southern pass. (2,158 mls.)	23,931	19,293	+ 4,638	243,329	232,103	+ 11,226
,, ,, goods	33,715	36,596	– 2,881	413,207	402,439	+ 10,768
,, ,, total	57,646	55,889	+ 1,757	656,536	634,542	+ 21,994

Good Friday week, 1934. * 39th week. † Strike, 1933.

Owing to the Easter holidays the traffic returns for the 12th and 13th weeks of the present year are both published in this issue

CONTRACTS AND TENDERS

Locomotives Ordered for South Africa and India

The North British Locomotive Co. Ltd. has secured the order from the South African Government Railways and Harbours Administration for 50 class 19C 4-8-2 type locomotives and tenders, at a total price of £300,000. The announcement of the call for tenders for these locomotives appeared in the issue of THE RAILWAY GAZETTE for January 26, and the principal dimensions and other leading particulars were included in the issues for February 9 and 16. All the engines are to be fitted with R.C. poppet valve gear. Twenty-five are to have steel fireboxes and twenty-five, copper fireboxes. Delivery is to commence in 20 weeks, calculated from April 9, and is to be completed in 40 weeks from that date.

The North British Locomotive Co. Ltd. has secured an order for three Indian standard XD class broad gauge 2-8-2 goods locomotives with double bogie tenders for the Nizam's State Railway to the inspection of Sir Douglas Fox & Partners, Consulting Engineers to the Nizam's State Railway.

Chas. Roberts & Co. Ltd. has received an order from the Bengal–Nagpur Railway for 500 pairs of wheels and axles with disc centres.

The Gloucester Railway Carriage & Wagon Co. Ltd. has received an order from the Bengal-Nagpur Railway for 500 pairs of wheels and axles with disc centres.

Ransomes & Rapier Limited has received an order from the Buenos Ayres & Pacific Railway for 100 power-driven gang trolleys.

The Butler Machine Tool Co. Ltd. has received an order for one motor-driven 28-in. stroke shaping machine from the Buenos Ayres Great Southern Railway.

The Mercury Truck & Tractor Company has received an order from the Buenos Ayres Great Southern Railway for three model 11A Mercury petrol platform trucks.

Craven Brothers (Manchester) Limited has received order for one motor-driven railway wheel lathe and one M.E.I. Craven-Rigid milling machine from the Buenos Ayres Great Southern Railway.

Callender's Cable & Construction Co. Ltd. has secured an order from the Great Indian Peninsula Railway for 22,000 U catenary clamps for main line overhead equipment at Rs. 0-6-9 each, delivered Makunga.

The Birmingham Railway Carriage & Wagon Co. Ltd. has received an order from the Bhavnagar State Railway for one metre-gauge, 64-ft. bogie-carriage underframe, complete with bogies, to the inspection of Messrs. Robert White & Partners. Sheffield-Twinberrow bogies will be used, and the underframe is to form part of a special saloon.

Stothert & Pitt Limited is supplying a large travelling gantry crane for the Broad Street goods depot, L.M.S.R.

The Blaenavon Co. Ltd. has secured an order from the Egyptian State Railways for 170 locomotive and tender tyres.

Leyland Motors Limited has recently secured an order for three Titan double-decked, oil-engined vehicles for Greenock Motor Services Limited and a similar order for Western S.M.T. Co. Ltd.

C. M. Hill & Co. Ltd., on behalf of S. A. Usines et Acieries Allard, has received an order for 50,000 m.s. dog-spikes from the Great Western of Brazil Railway and 100,000 dogspikes from the Rohilkund & Kumaon Railway.

D. Wickham & Co. Ltd., has secured the 29th repeat order for permanent way trolleys for the L.N.E.R., this order comprising 17 trolleys. In addition, orders for two gang trolleys and trailers have been received from the Great Western of Brazil Railway.

Alfred Herbert Limited has received orders for one Lumsden oscillating tool grinder No. 2A, one No. 17 universal tool and cutter grinder, one Lumsden 70-LEOD surface grinder, one No. 9 combination turret lathe, two Landis threading machines and one vertical spindle Lumsden surface grinder from the Buenos Ayres Great Southern Railway.

The Chinese Government Purchasing Commission invites tenders from British manufacturers for four 2-8-2 type locomotives and tenders. Tender forms specifications and drawings can be obtained from the consulting engineers, Messrs. Sandberg, 40, Grosvenor Gardens, London, S.W.1.

Electrical Equipments for L.P.T.B. Piccadilly Line

The British Thomson-Houston Co. Ltd. has received the order from the London Passenger Transport Board for 26 electric control equipments and motor-driven compressors for motor coaches for service on the Piccadilly Line. Reference to an order for 26 motor coaches having been placed by the Board with the Metropolitan-Cammell Carriage, Wagon & Finance Co. Ltd. was made in this column in the issue of THE RAILWAY GAZETTE for March 23. These equipments will be duplicates of the 145 B.T.H. electric control equipments and compressors previously supplied for motor coaches in service on the Piccadilly Line.

Tenders are under consideration for the supply of materials for the electrification of the Norte main lines between Madrid and Avila and Segovia. It is understood that the British, French, German, Swiss and Belgian manufacturers are in agreement as to tenders, and moreover, that this agreement has been reached in accord with the Spanish manufacturers.

The Quasi-Arc Co. Ltd., has received an order for two single-operator petrol-driven portable arc welding sets and one single-operator electrically-driven arc welding set from the Central Argentine Railway.

Les Ateliers du Nord de la France et des Mureaux, Blanc-Misseron, have been given an order by the Cie. Internationale des Wagons-Lits for the first 12 sleeping cars required for use on the Dover-Dunkirk train ferry, described in THE RAILWAY GAZETTE of March 23.

The Associated British Machine Tool Makers Limited, Calcutta, has received orders from the Chief Controller of Stores, Indian Stores Department, New Delhi, as follow :—

One No. 3 12-in. slotting machine to be supplied by the Butler Machine Tool Co. Ltd., with 7½-h.p. B.T.-H. motor. Price Rs. 11,422 f.o.r. Bombay.

One universal bolt and tube screwing machine to be supplied by Kendall & Gent with 5-h.p. B.T.-H. motor. Price Rs. 7,120 f.o.r. Bombay.

The East Indian Railway, Calcutta has recently placed orders as follow :—

Jessop & Co. Ltd. : 50,000 rail screws to be made in Belgium, price Rs. 10-12-0 per cwt. f.o.r. Howrah, and 400,000 m.s. jaws for C.I. sleepers, price Rs. 0-2-1 each, f.o.r. Dum Dum.

Burn & Co. Ltd. : 10,000 m.s. bearing plates, price Rs. 1-2-6 each, f.o.r. Howrah.

Exors. of Jas. Mills Limited : Total of 117,000 Mills rail anchors, price Rs. 0-9-0 each, f.o.r. Howrah.

The Chief Controller of Stores, Indian Stores Department, New Delhi has recently placed orders as follow :—

Martin & Co : 1,030 cwt. galvanised iron wire fencing, price Rs. 12,038, free delivery.

J. Stone & Co. (India) Ltd. : Five sets of 24 cells each, Tonum cells, price Rs. 9,308 free delivery, and 32 Rotomatic fans, total price Rs. 4,720, c.i.f. Karachi.

Siemens (India) Limited : One generating set comprising Deutz petrol engine and Siemens-Schuckert d.c. dynamo, and switchboard, price Rs. 1,125- f.o.r. Bombay and Calcutta.

The Agent, East Indian Railway, 105, Clive Street, Calcutta, invites tenders, receivable by April 19, for locomotive fittings for 1934–35.

Tenders are invited for the supply of rails and fishplates, fishbolts, steel sleepers, keys and bearing plates for the Bikaner State Railway, India. Tenders must be sent to Messrs. Rendel, Palmer & Tritton, 55, Broadway, Westminster, S.W.1 to arrive by April 19.

Tenders are invited, receivable by April 20, for the supply of 200,000 rail anchors for delivery between June 1, 1934 and September 30, 1934, to the North Western Railway of India. Tender forms are obtainable from the Track Supply Officer, N.W. Railway, Lahore.

The Chief Controller of Stores, Indian Stores Department (Engineering Section), New Delhi, invites tenders, receivable by April 30 for one cold starting crude oil engine driven air lift cum centrifugal pumping plant capable of delivering 6,600 Imp. gallons per hour against a total head of 55 ft. for the North Western Railway.

The Chief Controller of Stores, Indian Stores Department (Engineering Section), New Delhi, invites tenders, receivable by April 26, for buffer and draw-gear for the G.I.P. and East Indian Railways. Also receivable by April 23, for 12 steel flood-light masts, 72 ft. high, complete, for the G.I.P. Railway.

LEGAL AND OFFICIAL NOTICES

IN THE COURT of the Railway Rates Tribunal.

Road and Rail Traffic Act, 1933. Agreed Charges.

NOTICE IS HEREBY GIVEN that Applications for the approval of Agreed Charges under the provisions of Section 37 of the Road and Rail Traffic Act, 1933, short particulars of which are set out in the Schedule hereto, have been lodged with the Railway Rates Tribunal.

Particulars of the said Agreed Charges, and the said Applications, may be inspected at the Office of the Tribunal, 2, Clement's Inn, Strand, London, W.C.2, at any time during office hours and at the places specified in the sixth column of the said Schedule. A copy of each Application lodged with the Tribunal can be obtained from Mr. G. Cole Deacon, Secretary, Rates and Charges Committee, 35, Parliament Street, Westminster, London, S.W.1, price 1s. 0d., post free.

Notices of objection by any parties entitled to object to the approval of any of the said Agreed Charges must state concisely the grounds of objection and must be filed at the office of the Registrar, 2, Clement's Inn, Strand, London, W.C.2, on or before the 27th day of April, 1934, and a copy thereof on or before the same day served on or sent by registered post to Mr. G. Cole Deacon, at the above address. A separate Notice must be filed and served in respect of each Application.

Each Notice filed must be on foolscap size paper and must be stamped with an adhesive fee stamp for 2s. 6d. (which can be purchased at the office of the Tribunal only). If sent by post for filing each Notice must be accompanied by a Postal Order for 2s. 6d. payable to the Registrar, when a stamp will be affixed at the office. A Notice by a Representative Body of Traders must contain a statement of the facts upon which such Body claims to represent a substantial number of traders interested in, or likely to be affected by the decision on, the application.

Four additional copies of each Notice must be lodged with the original at the office of the Registrar.

T. J. D. ATKINSON,
Registrar.

5th April, 1934.

Number of Application	Date of Lodgment	Railway Company	Person or Firm	Nature of Agreed Charge	Where Available for Inspection
1934, No. 59	Mar. 29, 1934	Cheshire Lines Committee, G.W., L. & N.E. and L.M. & S.	HUGON & CO. LTD., Ogden Lane, Openshaw, Manchester	Per package. Suet, lard, tinned fruits, tinned and packet peas and beans, and paper bags and printed matter, unbound	L.M. & S. Goods Office, Victoria Station, Manchester and Railway Clearing House, London.
,, ,, 60	,,	L. & N.E. and L.M. & S.	DRYAD LTD., Leicester ..	Per package. Cane works, plywood, rush work, raffia, cardboard shapes, wool brushes and tools for handicraft work	London Road (L.M. & S.) Passenger Station, Leicester and Railway Clearing House, London.
,, ,, 61	,,	L.M. & S.	THOS. FATTORINI (SKIPTON) LTD., Skipton	Per package. Clothing, drapery and general stores wares	Skipton Passenger Station and Railway Clearing House, London.
,, ,, 62	,,	L. & N.E. and L.M. & S.	H. PEARSON LTD., Old Trafford, Manchester	Per package. Clothing and drapery	Old Trafford Passenger Station and Railway Clearing House, London.
,, ,, 63	,,	L. & N.E. and L.M. & S.	S. A. SQUIRRELL & CO., Leicester	Per package. Boots and shoes	London Road (L.M. & S.) Passenger Station, Leicester and Railway Clearing House, London.
,, ,, 64	,,	G.W., L. & N.E., L.M. & S. and SOUTHERN	A. GOLDENFELD & CO. LTD., Whitechapel, London	Per package. Haberdashery and hosiery	Railway Clearing House, London.
,, ,, 65	,,	L.M. & S.	ALBERT E. JONES (LONGTON) LTD., Stoke-on-Trent	Per package. China and earthenware	Longton Goods Station and Railway Clearing House, London.
,, ,, 66	,,	G.W., L. & N.E., L.M. & S., SOUTHERN and L.P.T.B. (Met. Section)	ACHILLE SERRE LTD., Walthamstow, London	Per package. Dyed and cleaned goods, also advertising material used in connection with the trader's business Goods for dyeing and cleaning	Railway Clearing House, London.
,, ,, 67	Mar. 31, 1934	L.M. & S.	SAXONE SHOE CO. LTD., Kilmarnock	Per package. Boots and shoes	Kilmarnock (L.M. & S.) Passenger Station and Railway Clearing House, London.
,, ,, 68	,,	L. & N.E. and L.M. & S.	I. & H. CAPLAN LTD., Sheffield	Per package. Clothing, drapery and general stores wares	Victoria (L. & N.E.) Passenger Station, Sheffield, and Railway Clearing House, London.
,, ,, 69	,,	G.W., L. & N.E., L.M. & S. and SOUTHERN	FARMA CREAM PRODUCT CO. LTD., London	Per package. Farma cream	Railway Clearing House, London.
,, ,, 70	,,	G.W.	ALLIED SUPPLIERS LTD., City Road, London	Per ton. Multiple shop traffic (provisions, &c.)	Railway Clearing House, London
,, ,, 71	,,	L.M. & S.	ALLIED SUPPLIERS LTD., City Road, London	Per ton. Multiple shop traffic (provisions, &c.)	Railway Clearing House, London.

South Indian Railway Company Limited.

THE Directors are prepared to receive Tenders for the supply of :—

ROLLED STEEL DISC WHEELS AND AXLES (BROAD AND METRE GAUGE).

Specifications and Forms of Tender will be available at the Company's Offices, 91, Petty France, Westminster, S.W.1.

Tenders, addressed to the Chairman and Directors of the South Indian Railway Co. Ltd., marked "Tender for Wheels and Axles," with the name of the firm tendering, must be left with the undersigned not later than 12 noon on Friday, the 13th April, 1934.

The Directors do not bind themselves to accept the lowest or any Tender.

A charge, which will not be returned, will be made of £1 for each copy of the Specification.

Copies of the drawings may be obtained at the Offices of the Company's Consulting Engineers, Messrs. Robert White & Partners, 3, Victoria Street, Westminster, S.W.1.

A. MUIRHEAD,
Managing Director.

91, Petty France,
Westminster, S.W.1.
27th March, 1934.

THE MADRAS & SOUTHERN MAHRATTA RAILWAY CO. LTD. invite Tenders for :—

(1) SIX OIL-ELECTRIC RAIL-CAR CHASSIS, 5 FT. 6 IN. GAUGE, DOUBLE BOGIE TYPE.

(2) BOILERS for LOCOMOTIVES, viz. :—
6 A.S. Type 4-6-0 Type—Passenger.
4 D.S. Type 2-8-0—Goods.
3 F.S. Type 2-6-4—Tank.
2 V.S. Type 0-6-0—Goods.
(Broad Gauge.)

Both Tenders are due in on Tuesday, 24th April, 1934, by 2 o'clock p.m.

Tender Forms are obtainable at address below, fee ONE GUINEA, *which will not be returned.*

The Directors do not bind themselves to accept the lowest or any Tender.

Company's Offices :—
25, Buckingham Palace Road,
Westminster, London, S.W.1.

OFFICIAL ADVERTISEMENTS intended for insertion on this page should be sent in as early in the week as possible. The latest time for receiving official advertisements for this page for the current week's issue is noon on Thursday. All advertisements should be addressed to :—*The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1.

The Chinese Government Purchasing Commission.

THE Commission is prepared to receive Tenders from British manufacturers only for the supply of :—

FOUR 2-8-2 TYPE LOCOMOTIVES WITH TENDERS.

Tender Forms, Specifications and Drawings can be obtained on and after April 4th at the offices of the Consulting Engineers, MESSRS. SANDBERG, 40, Grosvenor Gardens, London, S.W.1.

A non-returnable fee of £2 will be charged for each set of documents.

Universal Directory of Railway Officials and Railway Year Book

39th Annual Edition, 1933-34.

Price 20/- net.

THE DIRECTORY PUBLISHING CO. LTD.,
33, Tothill Street, London, S.W.1.

Railway Share Market

The stock and share markets recommenced business on Tuesday with a continuation of the interest previously shown in the speculative mining sections. Home railway stocks were firm pending the issue of the Easter holiday traffic receipts, and whilst these fell short of the best expectations, there was general satisfaction with the gross increases reported on long-distance traffic. A better view of the Easter traffic returns will be obtainable when the current week's figures are available next Wednesday.

The new loan of the British Government announced on Wednesday, which shows a return of only a trifle over 3 per cent., had an excellent influence on the market for home railway prior charge stocks, as these can still be purchased to give a return of around $3\frac{3}{4}$ to $4\frac{1}{2}$ per cent. The attractive character of stocks which return about 30s. per cent. more than can be obtained in the latest long-dated British Government stock may be expected to exercise an influence on quotations, and the general trend of home railway movements in this class is thought likely to be upward. London Transport Board's stocks were depressed by vague talk of labour troubles and the "C" stock, which had been a better market before the Easter vacation, was reactionary, with the senior stocks also showing a fractional fall. As there is little likelihood of the "A" and "B" stocks being affected by any trouble of the kind indicated, it is not anticipated the fall in price will be more than temporary. In foreign railway stocks Argentine issues were inclined to weaken, although the annouucements of the companies regarding the reasons for not paying the preference dividends had been expected. The question of payment for the whole year to June 30 will be reviewed by the Buenos Ayres Great Southern and the Buenos Ayres Western when the accounts for the year are completed. Last year the whole year's dividend was duly paid when the accounts were issued. Some of the Antofagasta issues are being steadily absorbed, and as the market is not very well stocked, there is a persistent movement in favour of holders. The 5 per cent. preference stock, which was down to 18 at one time last year, changed hands this week at 55.

The first debenture stock of the Aguas Blancas was marked up in the "Official List" by three points to 83-88. This stock is guaranteed as to principal and interest by the Antofagasta company. Central Uruguay extension debentures were in request and moved up, and the 5 per cent. debenture stock of the parent company was advanced two points to 44-47 ex the dividend. In other directions Beira Railway were good on the decision to pay the January interest this month, together with 6 per cent. on account of arrears, in accord with the moratorium scheme. Canadian Pacific shares were not influenced by the reference in the directors' report to the preference dividend outlook.

Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

	Railways	Miles open 1933-34	Week Ending	Traffics for Week: Total this year	Traffics for Week: Inc. or Dec. compared with 1933	No. of Week	Aggregate Traffics to Date: Totals This Year	Aggregate Traffics to Date: Totals Last Year	Aggregate Traffics to Date: Increase or Decrease	Shares or Stock	Prices: Highest 1933	Prices: Lowest 1933	Prices: Apl. 4, 1934	Yield % (See Note)
				£	£		£	£	£					
South & Central America	Antofagasta (Chili) & Bolivia	830	1.4.34	14,960	+ 4,230	13	167,590	121,660	+ 45,930	Ord. Stk.	26	11 3/4	23	Nil
	Argentine North Eastern	753	31.3.34	10,000	+ 600	39	395,300	420,700	— 25,400	"	14 1/2	5	8 1/2	Nil
	Argentine Transandine	111	—	—	—	—	—	—	—	A. Deb.	55	40	50	8
	Bolivar	170	Feb., 1934	6,400	— 1,206	8	12,950	15,200	— 2,250	6 p.c. Db.	10	5	10	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds.	15	11	13	37 9
	Buenos Ayres & Pacific	2,806	31.3.34	140,000	+ 8,000	39	4,134,000	4,228,000	— 94,000	Ord. Stk.	26	97/16	12 1/2	Nil
	Buenos Ayres Central	190	25.3.34	6,189	— 2,209	39	370,548	353,663	+ 16,885	Mt. Db.	30	10	25 1/2	Nil
	Buenos Ayres Gt. Southern	5,085	31.3.34	219,000	— 6,000	39	7,889,000	7,882,000	+ 7,000	Ord. Stk.	44 1/2	21 1/2	29 1/2	Nil
	Buenos Ayres Western	1,926	31.3.34	90,000	+ 15,000	39	2,548,000	2,620,000	— 72,000	"	34 1/2	15 3/4	23	Nil
	Central Argentine	3,700	31.3.34	‡165,000	+ 2,000	39	6,436,000	7,116,000	— 680,000	"	28 1/2	15	19 1/2	Nil
	Do.	—	—	—	—	—	—	—	—	Dfd.	18	10	12 1/2	Nil
	Cent. Uruguay of M. Video	273	31.3.34	14,306	— 2,069	39	638,953	595,948	+ 43,005	Ord. Stk.	20	8	15	Nil
	Do. Eastern Extn.	311	31.3.34	3,169	— 511	39	128,532	128,881	— 349	—	—	—	—	—
	Do. Northern Extn.	185	31.3.34	1,970	— 423	39	70,109	76,064	— 5,955	—	—	—	—	—
	Do. Western Extn.	211	31.3.34	1,784	+ 810	39	64,649	53,412	+ 11,237	—	—	—	—	—
	Cordoba Central	1,218	31.3.34	33,000	+ 2,000	39	1,600,000	1,593,000	+ 7,000	Ord. Inc.	9 1/4	2 1/2	4 1/2	Nil
	Costa Rica	188	Nov., 1933	18,534	— 3,195	21	99,724	107,788	— 8,064	Stk.	29	20	26	7 11/16
	Dorada	70	Feb., 1934	10,300	+ 4,500	8	22,000	13,600	+ 8,400	1 Mt. Db.	76 1/2	68 3/4	95	6 5/16
	Entre Rios	810	31.3.34	13,100	+ 1,700	39	607,900	596,100	+ 11,800	Ord. Stk.	26 1/2	9	17 1/2	Nil
	Great Western of Brazil	1,082	31.3.34	7,300	— 700	13	129,900	186,600	— 56,700	Ord. Sh.	23/6	1/2	5/4	Nil
	International of Cl. Amer.	794	Feb., 1934	$509,640	+ $74,295	8	$970,373	$865,255	+ $105,118	—	—	—	—	—
	Interoceanic of Mexico	—	—	—	—	—	—	—	—	1st Pref.	1/2	1/16	1/8	Nil
	La Guaira & Caracas	22 3/4	Mar., 1934	3 700	— 4,425	13	11,280	21,365	— 10 085	Stk.	16	10	12 1/2	Nil
	Leopoldina	1,918	31.3.34	25,901	— 2,533	13	303,358	334,872	— 31.514	Ord. Stk.	20 1/4	10	11	Nil
	Mexican	483	31.3.34	$464,400	+ $191,300	13	$2,937,500	$2,317,400	+ $620.100	"	3	1/2	2 1/8	Nil
	Midland of Uruguay	319	Feb., 1934	9.313	+ 1.790	34	77,993	67,947	+ 10,046	Ord. Stk.	2	1	2	Nil
	Nitrate	411	31.3.34	21.524	+ 17.479	13	85 292	25,759	+ 60.533	Ord. Sh.	78/6	11/16	3/8	Nil
	Paraguay Central	274	31.3.34	3 290	+ 410	39	124,920	105 320	+ 19,600	Pr. Li. Stk.	72	49 1/2	71	8 7/16
	Peruvian Corporation	1,059	Mar., 1934	66.977	+ 22,000	39	506.929	485.536	+ 21,393	Pref.	15 1/4	5	14	Nil
	Salvador	100	24 3.34	3.240	— 1.708	39	53.394	110,628	— 57.234	Pr. Li. Db.	70	66 1/2	70	7 1/8
	San Paulo	1531/2	25 3.34	28.714	— 10,955	12	345,312	366,740	— 21,428	Ord. Stk.	102	68	80	2 1/2
	Taltal	164	Feb., 1934	7 015	— 5,675	34	46,215	28,215	+ 18,000	Ord. Sh.	15 3/4	5/4	15/8	6 1/2
	United of Havana	1,365	31.3.34	51.773	+ 10.757	39	712.200	734,575	— 22.375	Ord. Stk.	8	2	5	Nil
	Uruguay Northern	73	Feb., 1934	1.086	— 70	34	9,391	12,630	— 3,239	Deb. Stk.	6	3 1/2	5	Nil
Canada	Canadian National	23,750	21 3.34	617,671	+ 123,479	11	6,497,669	5,296,412	+ 1,201,257	—	—	—	—	—
	Canadian Northern	—	—	—	—	—	—	—	—4 p.c.	Perp. Dbs.	60 1/2	38	68	5 7/8
	Grand Trunk	—	—	—	—	—	—	—	—	4 p.c. Gar.	99 3/4	85	99 1/2	4
	Canadian Pacific	17,018	31.3.34	653,800	+ 93.400	13	5,497,400	4,714,600	+ 782.800	Ord. Stk.	22 1/8	11	17	Nil
India†	Assam Bengal	1,329	24 2.34	29,347	+ 1,339	47	1,133,209	1,138,503	— 5,294	Ord. Stk.	79	70	77 1/8	3 7/8
	Barsi Light	202	10 3.34	2,092	— 1,013	49	139,372	134,745	+ 4,627	Ord. Sh.	10 1/4	70	100 1/2	5 15/16
	Bengal & North Western	2,113	10 3.34	53,336*	— 2,359	28	1,074,797	1,115,351	— 40 554	Ord. Stk.	292	240	271	5 7/8
	Bengal Dooars & Extension	161	10.3.34	2.146	+ 376	49	142.901	140,689	+ 2.212	"	127	119	125	5 3/8
	Bengal-Nagpur	3,269	24.2.34	139.275	+ 33,044	47	5,072,580	4,641,419	+ 431,161	"	97 1/4	83 1/2	100 1/2	3 15/16
	Bombay, Baroda & C. India	3,089	24.3.34	184,125	+ 12,600	51	7,863,375	7,535,925	+ 327,450	"	112	107	111 1/8	5 5/8
	Madras & South'n Mahratta	3,230	3.3.34	123.225	+ 3,592	48	5,232,715	5,045 926	+ 186,789	"	127	114 1/4	124 1/2	7 1/4
	Rohilkund & Kumaon	572	10.3.34	13,402	+ 858	28	228,056	215,247	+ 12,809	"	260	225	251	6
	South India	2,526	3.3.34	78,057	+ 1,161	48	3,730,299	3,801,659	— 71 360	"	119 1/2	112	117 1/8	6 15/16
Various	Beira-Umtali	204	Jan., 1934	45 442	+ 7,575	17	194,466	154,575	+ 39,891	—	—	—	—	—
	Bilbao River & Cantabrian	15	Feb., 1934	1,696	+ 1.129	8	3,243	1,992	+ 1.251	—	—	—	—	—
	Egyptian Delta	621	10.3.34	6 260	— 338	50	224,049	244,790	— 20.741	Prf. Sh.	15 1/32	1 3/4	2	Nil
	Great Southern of Spain	104	24.3.34	2,290	+ 70	12	25,996	26,668	— 672	Inc. Deb.	4	3	5 1/2	Nil
	Kenya & Uganda	1,625	Aug., 1933	159 746	+ 12,456	35	1,523,550	1,273,216	+ 250,334	—	—	—	—	—
	Manila	—	—	—	—	—	—	—	—	B. Deb.	53	33 1/2	44 1/2	7 7/8
	Mashonaland	913	Jan., 1934	82.678	+ 25.102	17	359,731	235,930	+ 123,801	1 Mg. Db.	91 3/4	42	94 1/2	5 1/4
	Midland of W. Australia	277	Feb., 1934	12 965	+ 445	34	108,714	104,268	+ 4,446	Inc. Deb.	89	70	96 1/2	4 1/8
	Nigerian	1,903	17.2.34	60.136	+ 21,751	47	1,601,007	1,653,648	— 52,641	—	—	—	—	—
	Rhodesia	1,538	Jan., 1934	148.792	+ 44,682	17	614,717	423,444	+ 191,273	4 p.c. Db.	98 1/2	80 3/4	100	4
	South African	13,151	10 3.34	480,094	+ 81,223	50	22.336,307	19,404,679	+ 2.931,628	—	—	—	—	—
	Victorian	6,172	Dec., 1933	731 550	— 113,258	25	4,307,656	4,520,111	— 212 455	—	—	—	—	—
	Zafra & Huelva	112	Feb., 1934	10 346	+ 264	8	23,255	20,970	+ 2,285	—	—	—	—	—

NOTE.—Yields are based on the approximate current prices and are within a fraction of 1/16. * Traffic interrupted by earthquake.
† Receipts are calculated @ 1s. 6d. to the rupee. § ex dividend. ‡ Average rate of exchange for the week:—This year 32 1/32. Last year 40 7/8.